TRAFFIC IMPACT STUDY

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Mentone Blvd Gas Station

SAN BERNARDINO COUNTY, CALIFORNIA

Prepared by:

DAVID EVANS AND ASSOCIATES INC.

DRAFT REPORT
May 15, 2019

DAVID EVANS
AND ASSOCIATES INC.

May 15, 2019 Job No. CJCD0000-0001

Fred Cohen
CJC Design, Inc.
22485 La Palma Avenue, Suite 202
Yorba Linda, CA 92887

RE: Traffic Impact Study – Mentone Blvd Gas Station – Unincorporated Community of Mentone, San Bernardino County, California

Dear Mr. Cohen:

David Evans and Associates, Inc. is pleased to submit this Traffic Impact Study (TIS) Report for the proposed Mentone Blvd Gas Station located at the southwest corner of Mentone Blvd and Crafton Ave. The project, identified as the Mentone Blvd Gas Station, consists of an approximate 2,920 SF Convenience Store, 12 fueling positions, and a 100 ft. tunnel Car Wash with vacuum stations located in the Unincorporated Community of Mentone, San Bernardino County, California.

The report examines the traffic impacts with and without the addition of the proposed project and presents recommended traffic improvements. The report also addresses the impacts of overall growth within the area to assure that cumulative traffic mitigations can be addressed.

We are pleased to have been of assistance to you in processing and obtaining approval for the project. If you have any questions or comments, please feel free to contact me at 760-524-9115.

Respectfully submitted,

David Evans and Associates, Inc.

Robert A. Kilpatrick, P.E., T.E.
Senior Project Manager / Senior Associate

DAVID EVANS AND ASSOCIATES INC.

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DAVID EVANS AND ASSOCIATES INC.

1 INTRODUCTION

This report identifies the traffic impacts and presents recommendations for access and traffic mitigation for the proposed Mentone Blvd Gas Station proposed to be located at the southwest corner of Mentone Blvd and Crafton Ave. The project, identified as the Mentone Blvd Gas Station, consists of an approximate 2,920 SF Convenience Store, 12 fueling positions, and a 100 ft. tunnel Car Wash with vacuum stations

Figure 1 illustrates the vicinity map and project location and *Figure 2* illustrates the proposed project site plan.

The intent of this TIS is to address the impacts and mitigations required for the proposed development. This report identifies four (4) scenarios, as outlined in the County approved Traffic Scope. The scenarios include an Existing Condition, Existing Plus Project Condition, Background Condition, Project Conditions.

The Existing Condition analysis is based on existing traffic counts collected in April 2019 and reflects the current conditions of the project area.

The Existing Plus Project Condition addresses anticipated impacts if the project were completed today. The values generate a base comparison of project impacts without ambient growth. The Existing Plus Project Condition considers a trip distribution utilizing existing intersections included in the study area.

The Background Condition addresses impacts due to ambient growth up to the Project Buildout Year of 2020 within the study area. The ambient growth is estimated as an annual 2% growth rate. The Background Condition considers a trip distribution utilizing existing intersections included in the study area.

The Project Conditions analysis is the examination of potential development correlating with the development of the project up to the Project Year of 2020. The values generate a base comparison of project impacts with ambient growth. The Project Conditions considers a trip distribution utilizing existing intersections included in the study area.

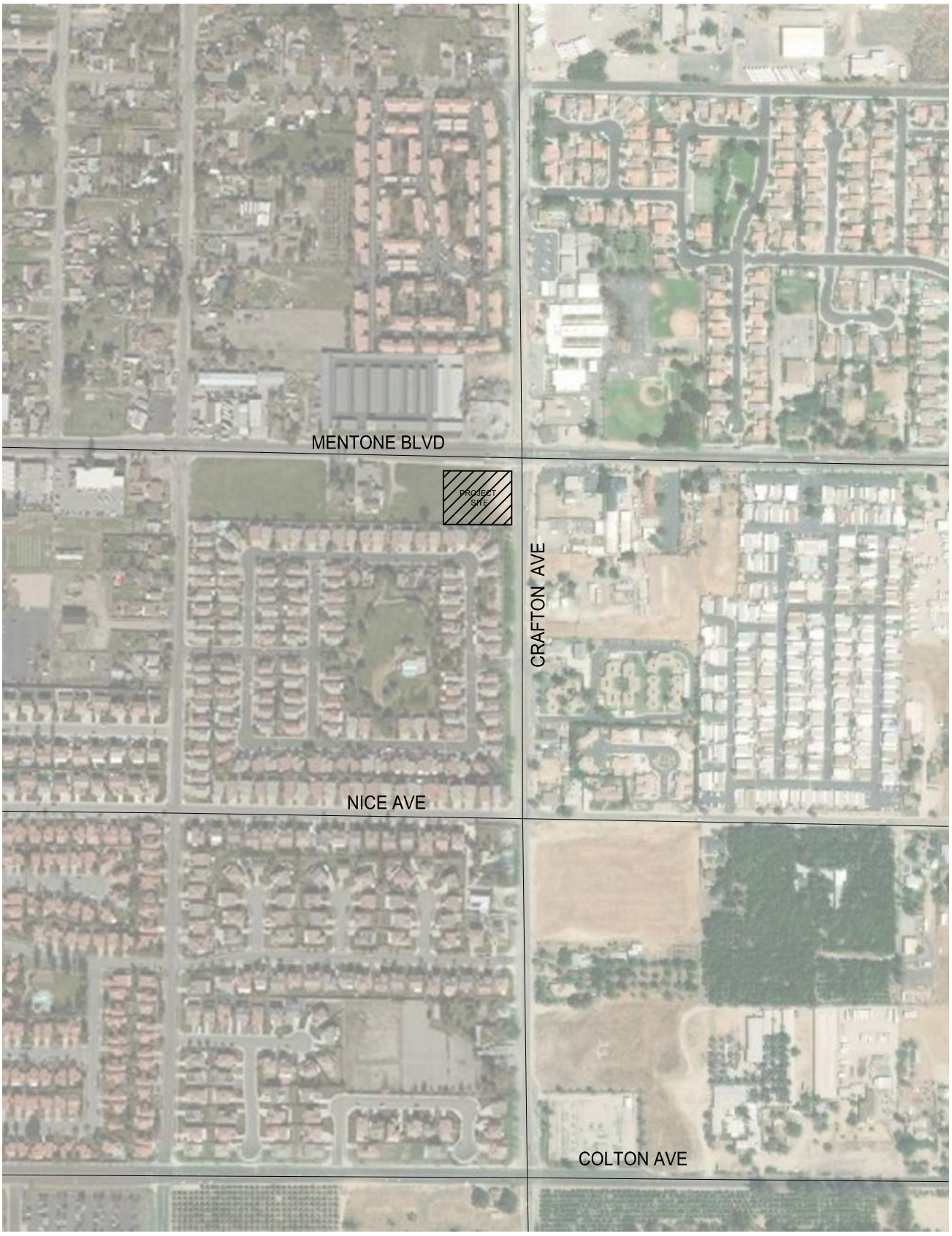

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FIGURE 1: VICINITY MAP
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

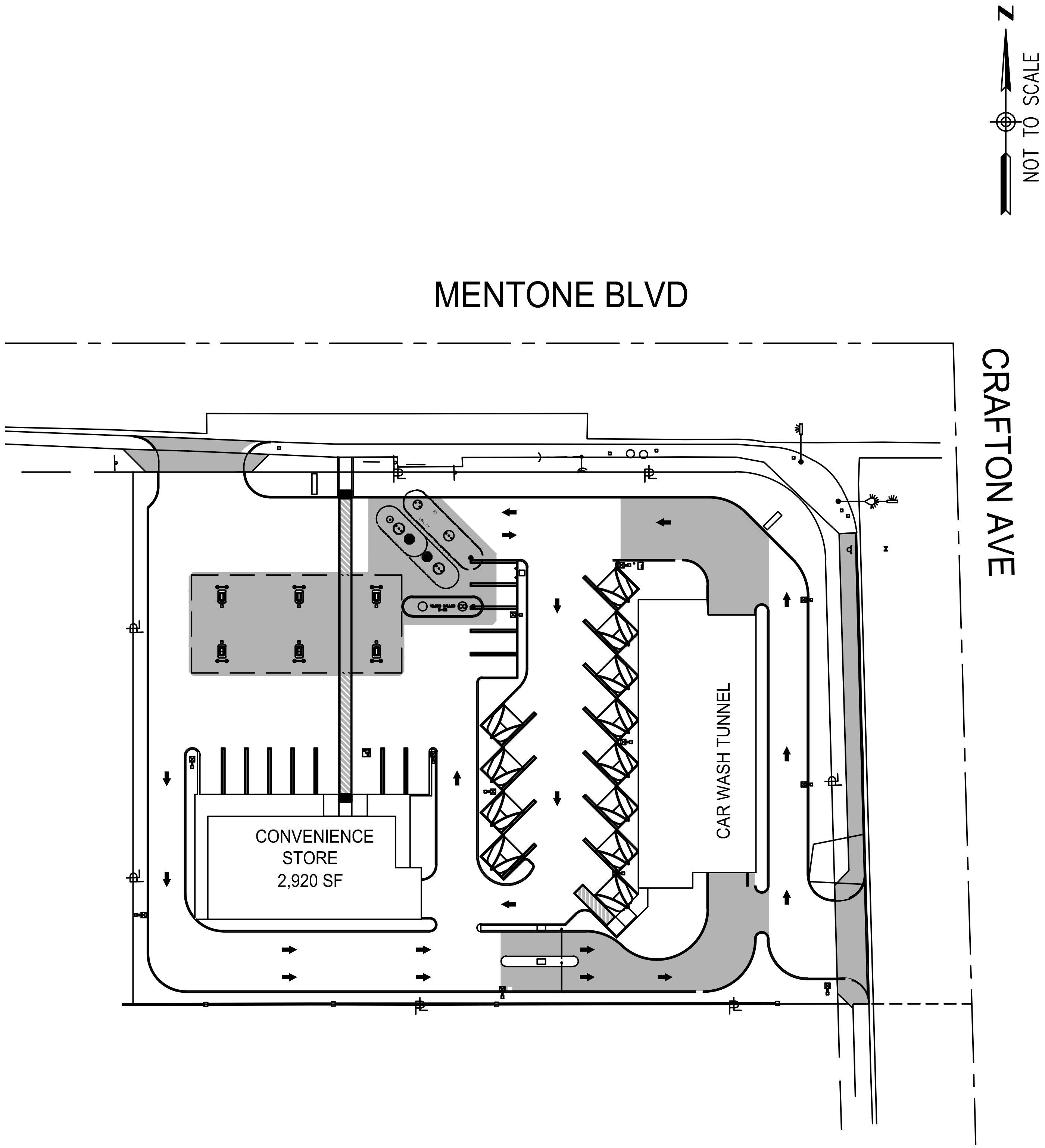

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FIGURE 2: SITE MAP
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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Last Opened: May 03, 2019 - 1:58pm by: Tnm

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2 EXISTING CONDITIONS

Existing Street System

The following roadways provide access to the study area:

Mentone Blvd (State Route 38) is an east-west route that provides regional access to the Mentone Community. This roadway is primarily a three-lane roadway, one lane in each direction and a two-way-left-turn-lane, and turn lanes at key intersections. The posted speed limit in the project area is 40 MPH with a school zone advisory.

Crafton Ave is a north-south route that provides local access to the Mentone Community. It is primarily a two-lane roadway, one in each direction with turn lanes at key intersections.

The proposed project is located at the southwest corner of Mentone Blvd and Crafton Ave in the unincorporated community of Mentone, San Bernardino County, California. The project is bound by Mentone Blvd and commercial development to the north, Single Family Residential Development to the south, Crafton Ave and a corner market to the east, and undeveloped land and single family residential to the west.

Primary access to the site will be obtained from a driveway along Mentone Blvd and a secondary access will be obtained from a driveway along Crafton Ave.

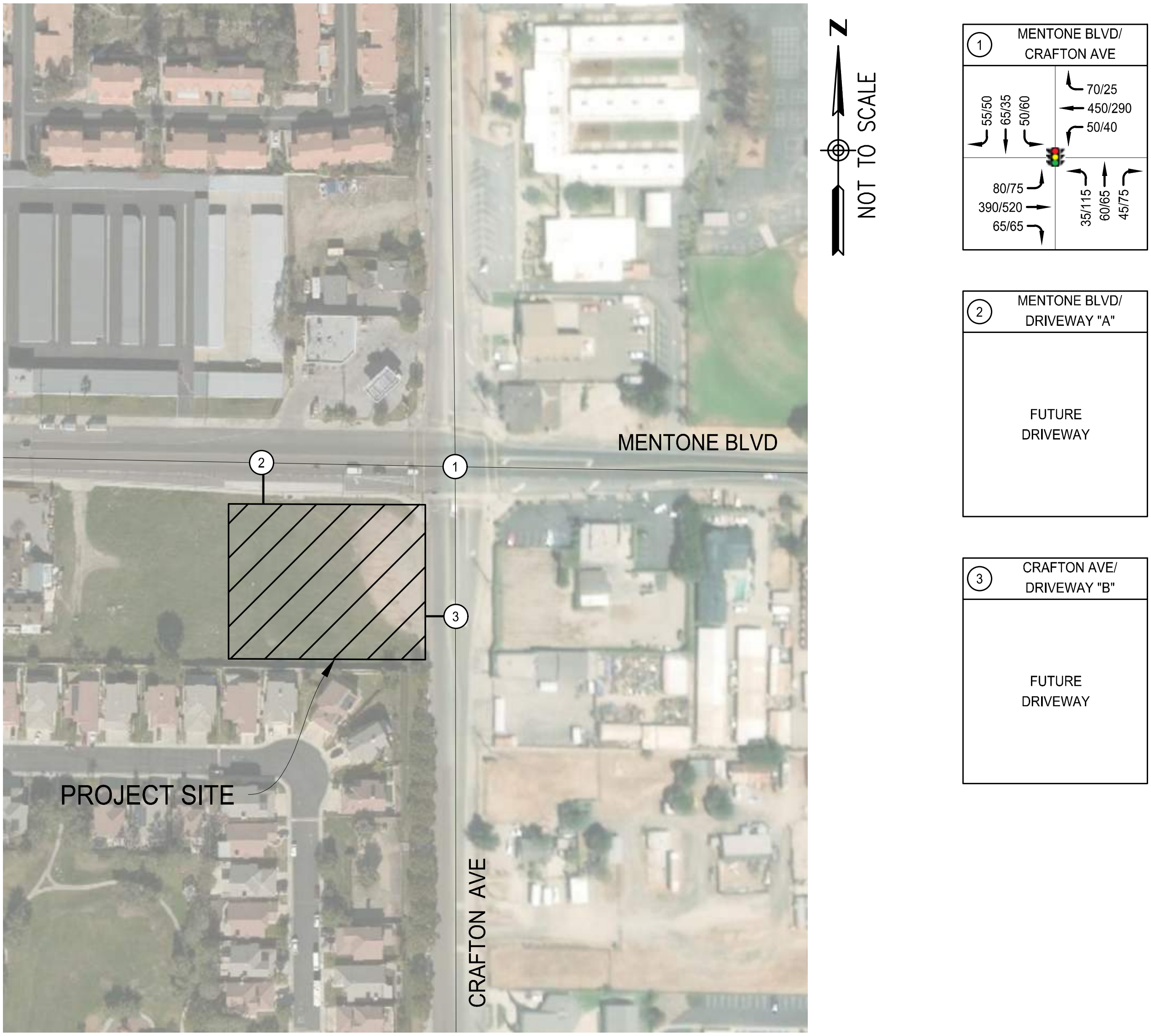
Based on the potential traffic impacts to the area roadways, one existing intersection and two future driveways in the study area have been identified for analysis:

1. Mentone Blvd (State Route 38) at Crafton Ave
2. Mentone Blvd (State Route 38) at Project Driveway “A” (Future Driveway)
3. Crafton Ave at Project Driveway “B” (Future Driveway)

The intersection of Mentone Blvd at Crafton Ave is signalized; with east-west left turn protected phasing.

Existing Traffic Volumes

Figure 3 illustrates the existing peak hour traffic volumes in the study area. Turn movement counts were obtained from Newport Traffic Studies, an independent traffic data collection company. Turn movement counts were collected during the AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak period at the above-mentioned existing intersection. These counts were conducted in April 2019. The resulting turning movement volumes are presented in *APPENDIX B* of this report.



LEGEND

XX/XX - AM/PM TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- SIGNALIZED INTERSECTION

- STOP CONTROLLED APPROACH

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FIGURE 3: EXISTING TRAFFIC VOLUMES
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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Intersection Capacity Analysis Methodology

Based on the existing intersection geometrics and traffic volumes during the AM and PM peak hour, the intersection capacity analyses were conducted for the signalized intersection using the Synchro Software. Synchro is released by Trafficware Ltd, version 10.

The Highway Capacity Manual (HCM) traffic analysis methodology is a method developed by the Transportation Research Board (TRB). Under the HCM methodology the LOS of an intersection is determined based on the delay of vehicles at the intersections. *Table 1* provides the HCM 6 LOS thresholds for signalized intersections. *Table 2* provides the HCM 6 LOS thresholds for Two-Way-Stop-Controlled (TWSC) intersections.

Table 1: HCM 6 - LOS Criteria for Signalized Intersections

LOS	Control Delay per Vehicle (s/veh)
A	≤ 10
B	> 10 and ≤20
C	> 20 and ≤35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Source: **HCM 6 (Exhibit 19-8)**

Table 2: HCM 6 - LOS Criteria for Two-Way Stop Controlled Intersections

LOS	Control Delay per Vehicle (s/veh)
A	0 – 10
B	10 – 15
C	15 – 25
D	25 – 35
E	35 – 50
F	> 50

Source: **HCM 6 (Exhibit 20-2)**

2.1 Existing Traffic Analysis

Intersection capacity analysis were conducted for the study intersection to determine an existing intersection level-of-service (LOS), based on the existing intersection geometrics and the AM and PM peak hour traffic volumes. The results of the analysis are shown in *Table 3* and provided in *APPENDIX B. Figure 4* illustrates the existing intersection geometrics utilized in the capacity analysis.

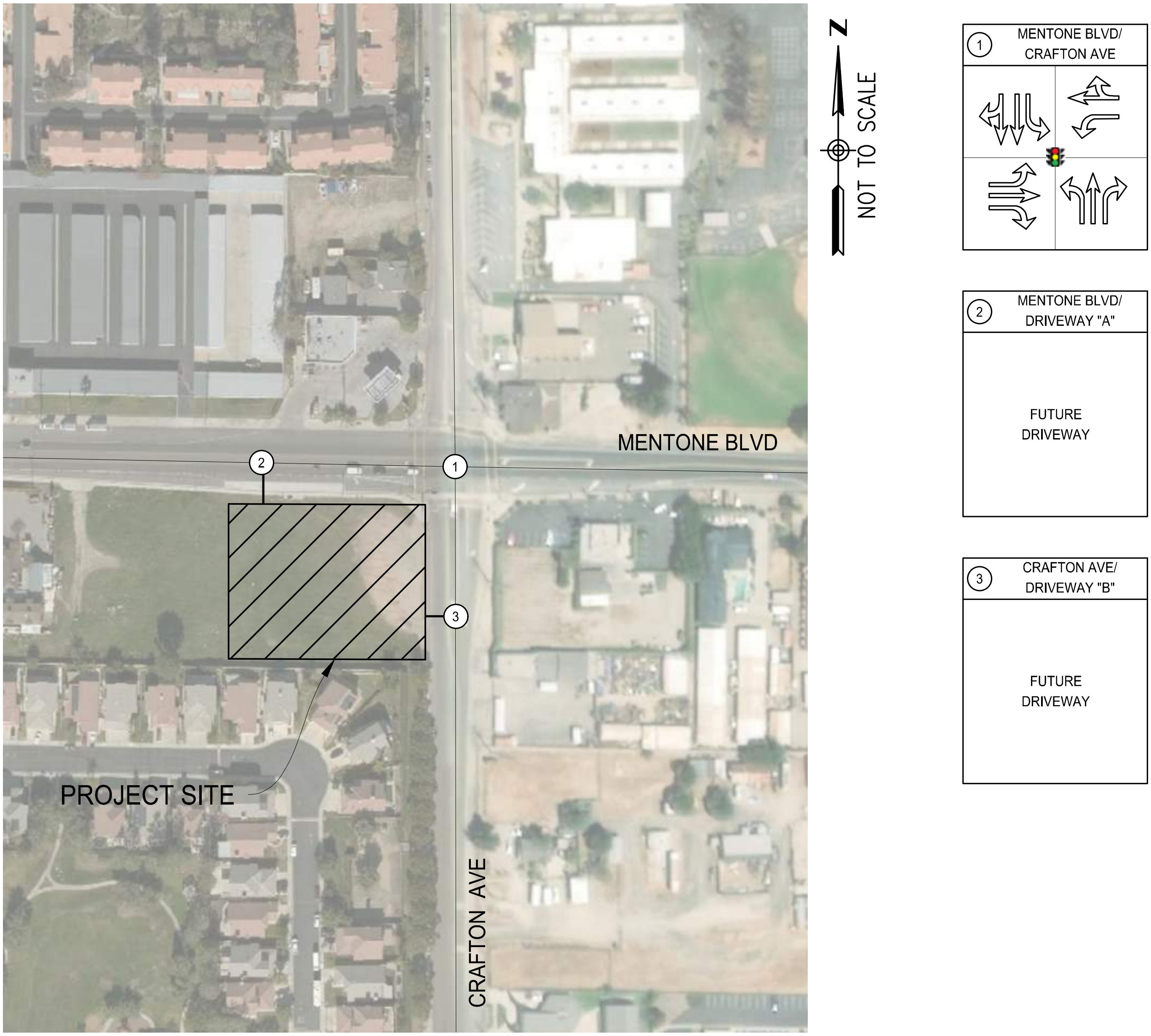
Table 3: Intersection Capacity Analysis - Existing Condition

Intersection		AM Peak Hour		PM Pear Hour	
		Delay(1)	LOS(2)	Delay(1)	LOS(2)
1	Mentone Blvd (State Route 38) at Crafton Ave	14.3	B	15.4	B

(1) Delay – In seconds per vehicle
(2) LOS – Level of Service
(3) Stop controlled intersection

Source: David Evans and Associates, Inc.

As shown in *Table 3* under Existing Conditions, the study intersection is operating at an acceptable LOS.



LEGEND

- EXISTING GEOMETRICS

(#) - STUDY INTERSECTIONS

- SIGNALIZED INTERSECTION

- STOP CONTROLLED APPROACH

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FIGURE 4: EXISTING INTERSECTION GEOMETRICS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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Last Opened: May 03, 2019 - 4:48pm by: Tnm

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3 EXISTING PLUS PROJECT CONDITIONS

The proposed project consists of Gasoline/Service Station with Convenience Market, Car Wash, and 12 fueling positions. The Existing Plus Project Conditions address the impacts due to project traffic.

Project Trip Generation

To identify potential traffic impacts, trip generation factors were applied to the land use to generate project trip estimates. Trip generation factors for the Gasoline/Service Station with Convenience Market (ITE Land Use Category 945) were obtained from the ITE Trip Generation Manual, 10th Edition.

Table 4 summarizes the estimated trip generation for the project site during the AM (7-9 AM) peak and PM (4-6 PM) peak periods. Commuter oriented land uses such as a Gasoline/Service Station with Convenience Market attract trips (known as "pass-by" trips) from traffic passing the site on the way from an origin to an ultimate destination. The pass-by trip factors are from the ITE Trip Generation Manual, 10th Edition.

Table 4: Project Trip Generation

	Use		AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
1	**Gasoline/Service Station with Convenience Market**							
	(ITE 945) Per Fueling Position	205.36	6.36	6.11	12.47	7.13	6.86	13.99
	12 Fueling Positions	2,464	76	74	150	86	82	168
	Pass-By (62%, 56%)	1,454	47	46	93	48	46	94
	Primary Trips	**1,010**	29	28	**57**	38	36	**74**

Source: "Trip Generation Manual, Institute of Transportation Engineers", 10th Edition

As presented in *Table 4,* it is estimated that the project will generate 1,010 primary daily trips, 57 AM primary, and 74 PM primary peak hour trips.

Project Trip Distribution

To address the impacts of the estimated project traffic, the trips were distributed and assigned to the surrounding streets and study intersections. The project traffic was distributed based on the anticipated project utilization. Once the distribution pattern was established, project trips were assigned to the area streets that serve the project.

Figure 5 illustrates the estimated distribution pattern for the primary trips. *Figure 6* illustrates the AM and PM peak hour primary trips that occur at the study area intersections. *Figure 7* illustrates the AM and PM peak hour pass-by trips that occur at the study intersections. *Figure 8* illustrates the AM and PM peak hour total project trips that occur at the study intersections.

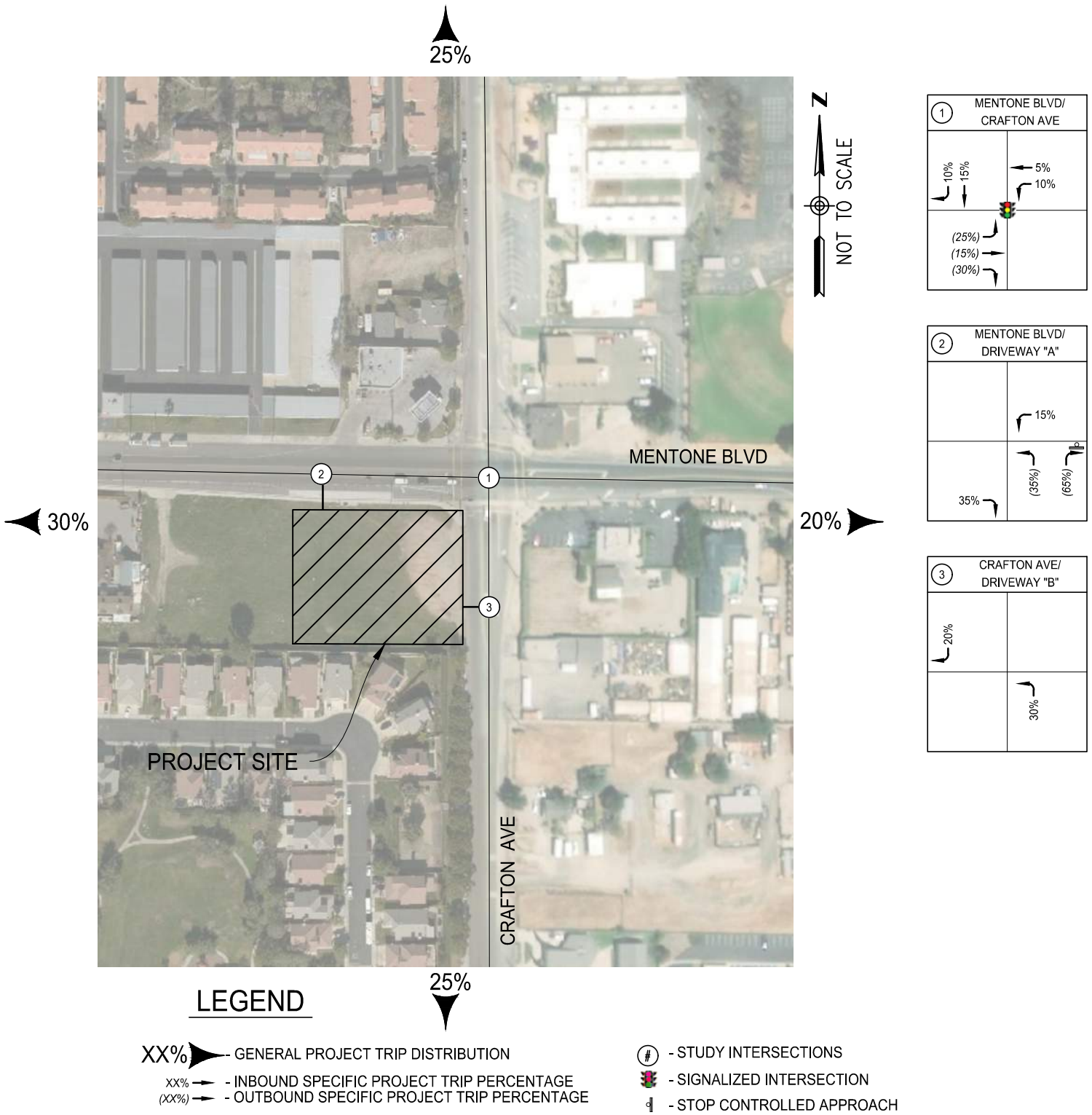

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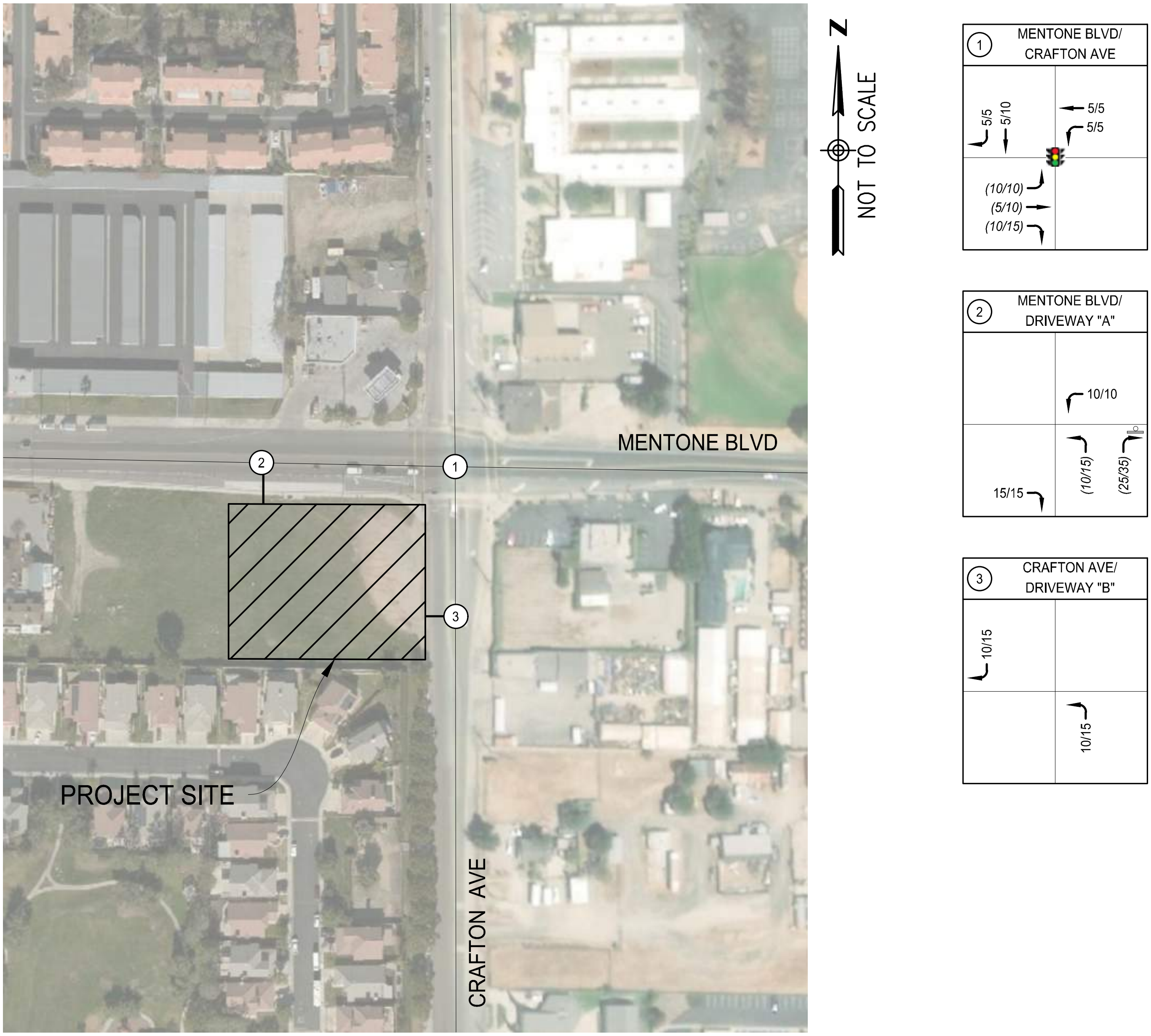
FIGURE 5: PROJECT TRIP DISTRIBUTION
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA



PRIMARY PROJECT TRIPS

AM PEAK PERIOD - 29 IN / 28 OUT
PM PEAK PERIOD - 38 IN / 36 OUT

LEGEND

XX/XX - AM/PM PROJECT TRIP
(#) - STUDY INTERSECTIONS
- SIGNALIZED INTERSECTION
- STOP CONTROLLED APPROACH

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FIGURE 6: PRIMARY PROJECT TRIPS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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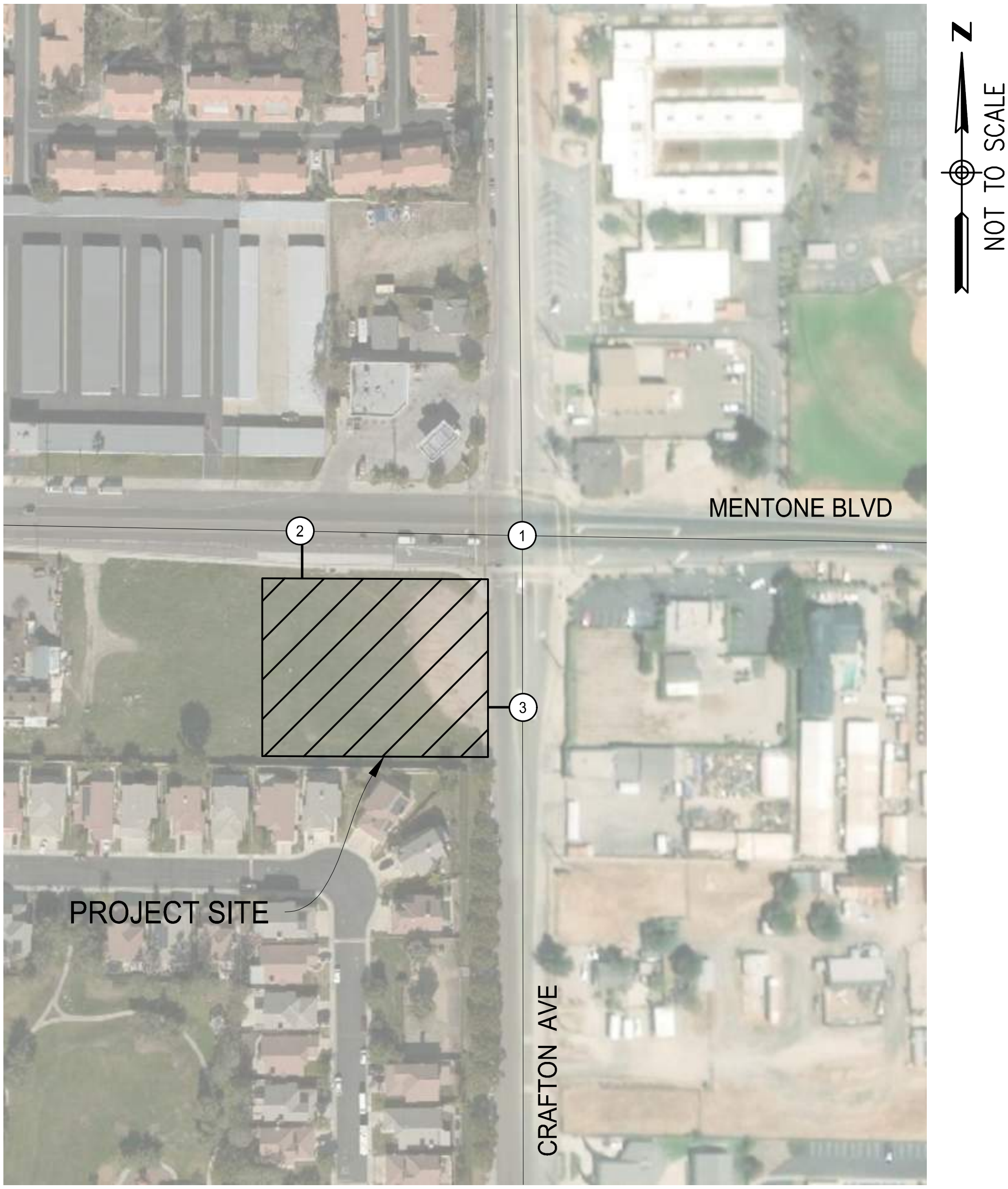
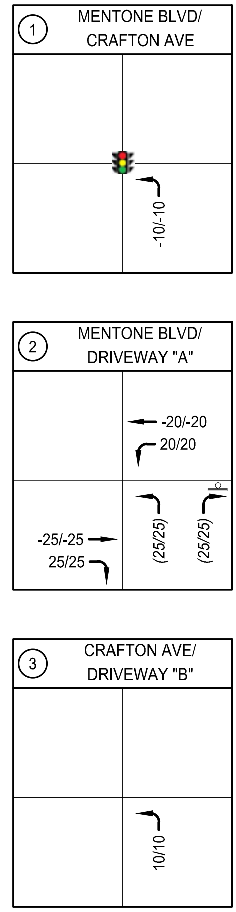
Last Opened: May 03, 2019 - 4:48pm by: Tnm





PASS-BY PROJECT TRIPS

AM PEAK PERIOD - 47 IN / 46 OUT
PM PEAK PERIOD - 48 IN / 46 OUT

LEGEND

XX/XX - AM/PM PROJECT TRIP
(#) - STUDY INTERSECTIONS
- SIGNALIZED INTERSECTION
- STOP CONTROLLED APPROACH

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FIGURE 7: PASS-BY PROJECT TRIPS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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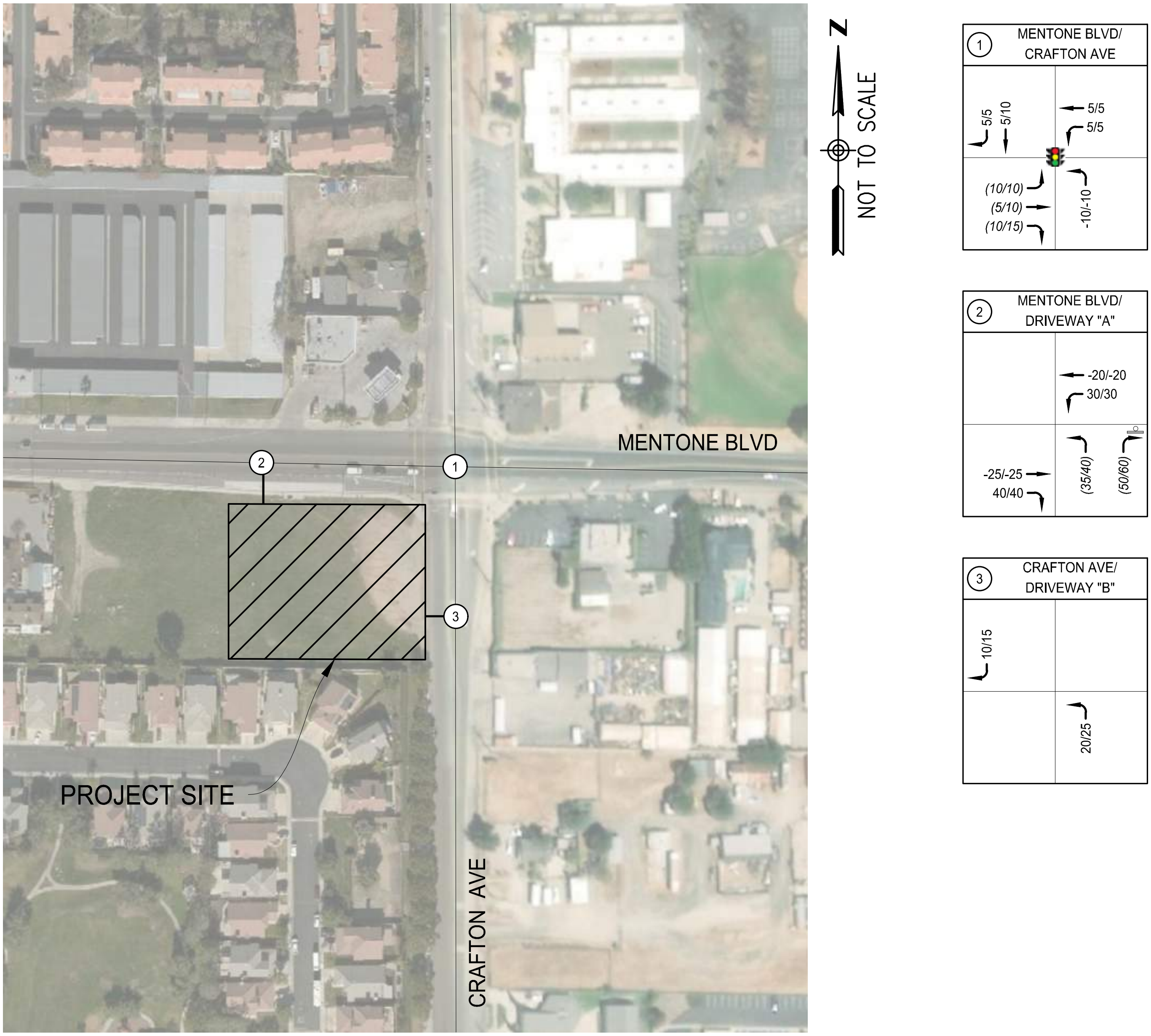
Last Opened: May 03, 2019 - 4:49pm by: Tnm



PROJECT TRIPS

AM PEAK PERIOD - 76 IN / 74 OUT
PM PEAK PERIOD - 86 IN / 82 OUT

LEGEND

XX/XX - AM/PM PROJECT TRIP
(#) - STUDY INTERSECTIONS
- SIGNALIZED INTERSECTION
- STOP CONTROLLED APPROACH

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FIGURE 8: TOTAL PROJECT TRIPS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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Last Opened: May 03, 2019 - 4:50pm by: Tnm

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3.1 Existing Plus Project Traffic Analysis

Based on the proposed project trip generation, traffic distribution and assignment patterns intersection capacity analyses were conducted to assess the estimated project impacts.

The project trips were added to the Existing Condition to develop the Existing Plus Project Traffic Volumes, illustrated in *Figure 9.* Intersection capacity analysis for the Existing Plus Project was performed using the methodology presented in *Chapter 2.* The results of the analysis are shown in *Table 5* and provided in *APPENDIX B.*

Table 5: Intersection Capacity Analysis – Existing plus Project Conditions

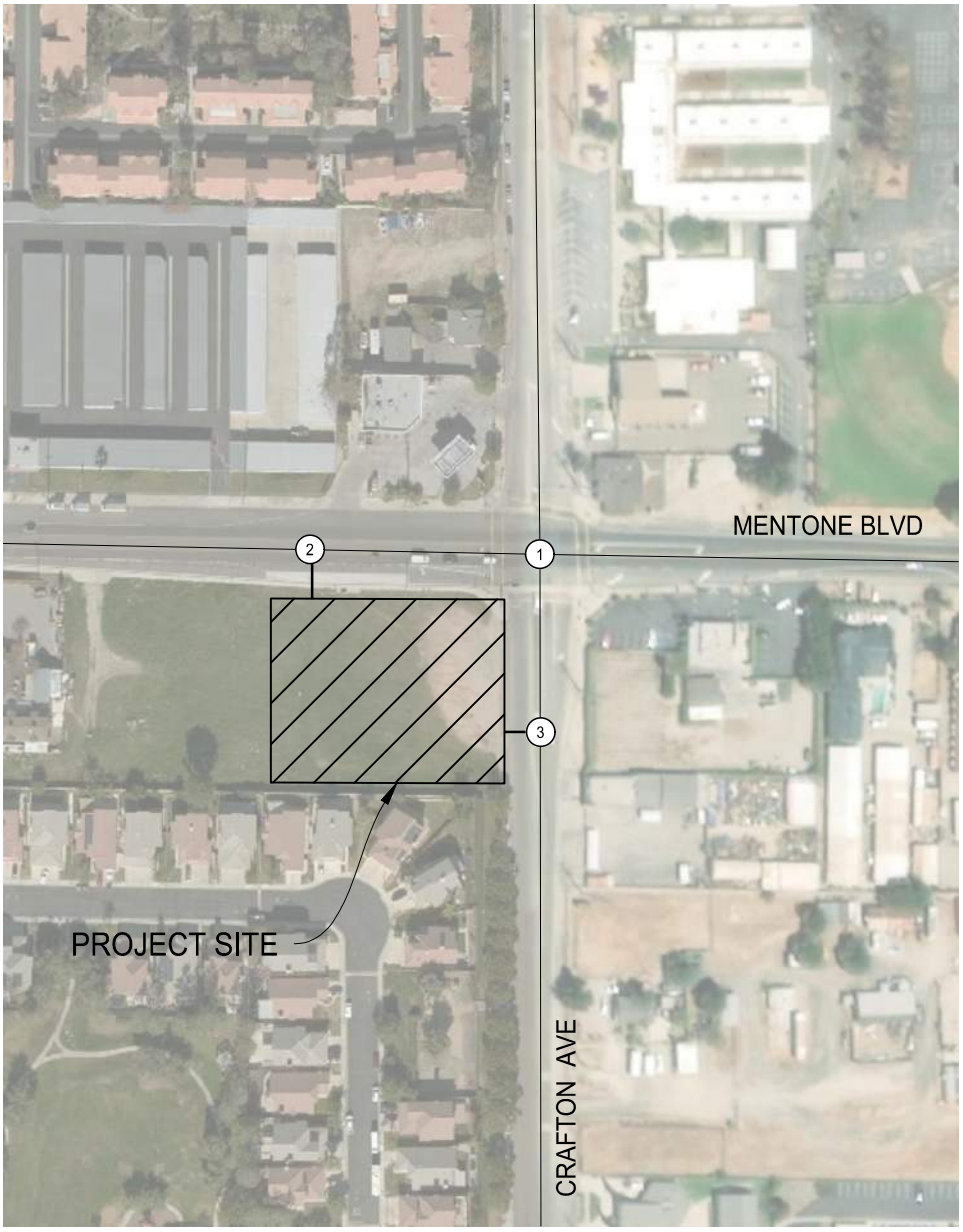
	Intersection	AM Peak Hour		PM Pear Hour	
		Delay(1)	LOS(2)	Delay(1)	LOS(2)
1	Mentone Blvd (State Route 38) at Crafton Ave	14.5	B	15.5	B
2	Mentone Blvd (State Route 38) at Project Driveway “A” (3)	15.5	C	18.5	C
3	Crafton Ave at Project Driveway “B” (3)	10.9	B	12.1	B

(1) Delay – In seconds per vehicle
(2) LOS – Level of Service
(3) Stop controlled intersection

Source: David Evans and Associates, Inc.

As shown in *Table 5* under the Existing plus Project Condition, all of the study intersections are anticipated to continue to operate at an acceptable LOS utilizing the existing and proposed intersection geometrics.

The Existing plus Project Conditions Intersection Geometrics are illustrated in *Figure 10.*



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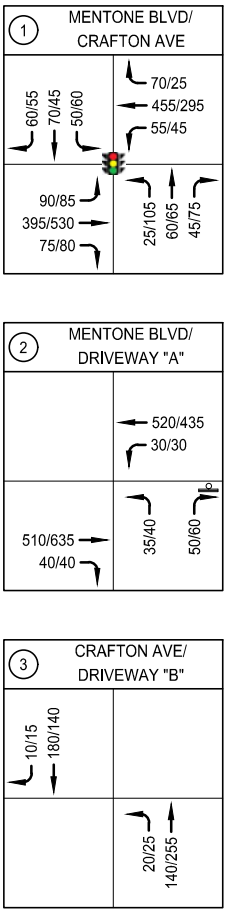
NOT TO SCALE



LEGEND

XX/XX - AM/PM TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- SIGNALIZED INTERSECTION

- STOP CONTROLLED APPROACH

DAVID EVANS AND ASSOCIATES INC.

FIGURE 9: EXISTING PLUS PROJECT TRAFFIC VOLUMES
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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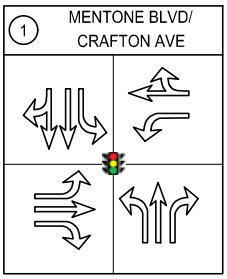
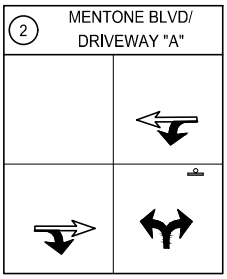
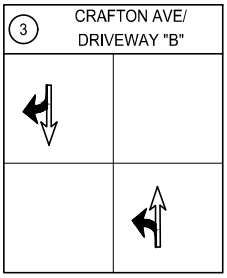
NOT TO SCALE







LEGEND

- EXISTING GEOMETRICS
- PROPOSED GEOMETRICS
- STUDY INTERSECTIONS
- SIGNALIZED INTERSECTION
- STOP CONTROLLED APPROACH

DAVID EVANS AND ASSOCIATES INC.

FIGURE 10: EXISTING PLUS PROJECT INTERSECTION GEOMETRICS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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4 BACKGROUND CONDITIONS

Area Growth

To analyze the project impacts, the inclusion of ambient traffic within the study area is necessary. Typically, regional and local growth is expected over the years at rates ranging from 1% to 2% compounded annually. The regional and local growth is based on the existing traffic volumes, an annual 2% increase up to Project Year. This growth is known as background traffic. The analysis of background traffic allows a comparison of traffic impacts with and without the project applying the growth to the existing turn movement volumes. *Figure 11* illustrates Background Condition traffic volumes.

4.1 Background Traffic Analysis

To determine the impacts of the project to the study intersection, anticipated regional growth was added to existing condition volumes to produce the Background Condition volumes. The analysis was conducted with the existing intersection geometrics. Intersection capacity analysis for the Background Condition was performed using the methodology presented in *Chapter 2.* The results of the analysis are shown in *Table 6* and provided in *Appendix C* of this report.

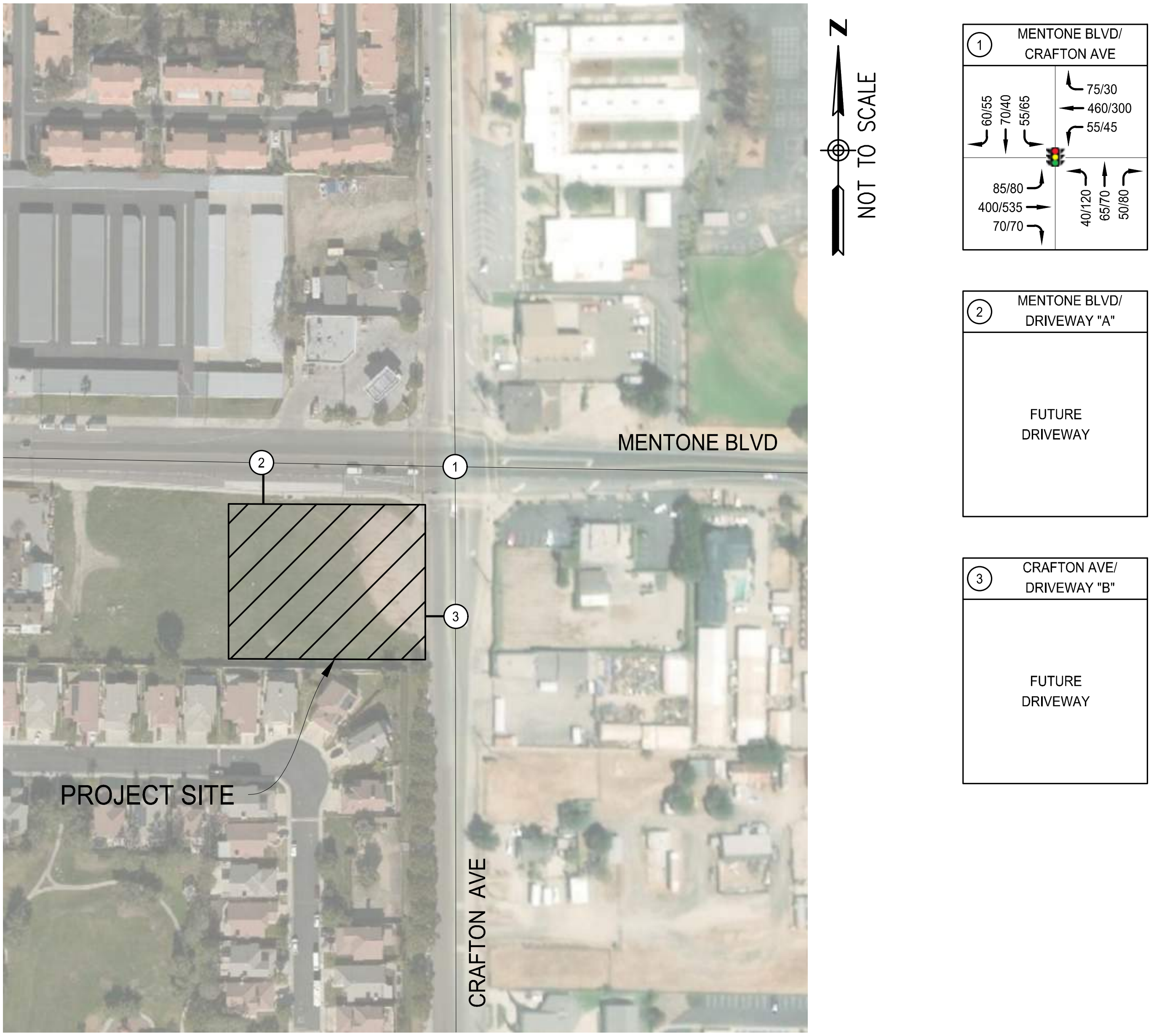
Table 6: Intersection Capacity Analysis - Background Condition

	Intersection	AM Peak Hour		PM Pear Hour	
		Delay(1)	LOS(2)	Delay(1)	LOS(2)
1	Mentone Blvd (State Route 38) at Crafton Ave	14.6	B	15.6	B

(1) Delay – In seconds per vehicle
(2) LOS – Level of Service
(3) Stop controlled intersection

Source: David Evans and Associates, Inc.

As provided in *Table 6* under Background Condition, the study intersection is anticipated to continue operate at an acceptable LOS.



LEGEND

XX/XX - AM/PM TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- SIGNALIZED INTERSECTION

- STOP CONTROLLED APPROACH

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FIGURE 11: BACKGROUND TRAFFIC VOLUMES
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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Last Opened: May 03, 2019 - 5:00pm by: Tnm

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5 PROJECT CONDITIONS

The proposed project is anticipated to open in the Year 2020. To analyze the project impacts, the inclusion of traffic generated by regional ambient growth within the study area is necessary. Typically, ambient growth is expected over the years at rates ranging from 1% to 2% annually; a 2% annual increase was utilized to establish the background traffic.

Based on the proposed traffic distribution, assignment patterns and project trip generation, intersection capacity analyses were conducted to assess the estimated project impacts. To determine the project impacts at the study intersection and driveways, project trips were added to the Background Condition volumes to produce the Project Condition volumes.

5.1 Project Traffic Analysis

Figure 12 illustrates the calculated Project Condition traffic volumes. Intersection capacity analysis for the Project Condition was performed using the methodology presented in *Chapter 2.* The results of the analysis are shown in *Table 7* and provided in *Appendix C* of this report.

Table 7: Intersection Capacity Analysis - Project Traffic

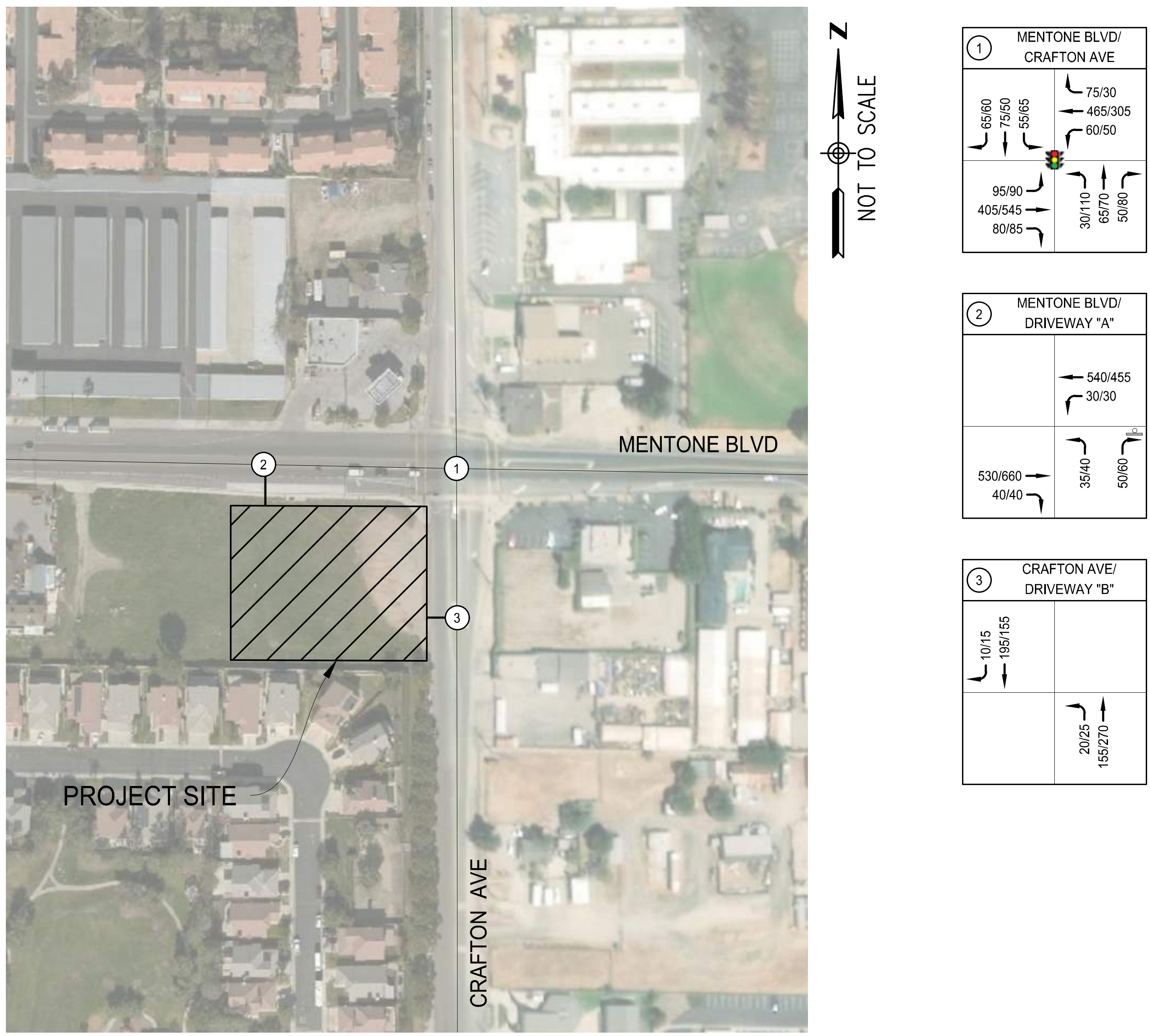
	Intersection	AM Peak Hour		PM Pear Hour	
		Delay(1)	LOS(2)	Delay(1)	LOS(2)
1	Mentone Blvd (State Route 38) at Crafton Ave	14.8	B	15.9	B
2	Mentone Blvd (State Route 38) at Project Driveway “A” (3)	15.9	C	19.2	C
3	Crafton Ave at Project Driveway “B” (3)	11.3	B	12.6	B

(1) Delay – In seconds per vehicle
(2) LOS – Level of Service
(3) Stop controlled intersection

Source: David Evans and Associates, Inc.

As presented in *Table 7* under Project Completion, all of the study intersections are anticipated to continue operate at an acceptable LOS.

The Project Conditions Intersection Geometrics are illustrated in *Figure 13.*



LEGEND

XX/XX - AM/PM TRAFFIC VOLUMES

(#) - STUDY INTERSECTIONS

- SIGNALIZED INTERSECTION

- STOP CONTROLLED APPROACH

DAVID EVANS AND ASSOCIATES INC.

FIGURE 12: PROJECT TRAFFIC VOLUMES
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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Last Opened: May 03, 2019 - 5:00pm by: Tnm

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6 PROJECT MITIGATION AND SUMMARY

In summary, the project as presented will not cause significant impacts to the intersections. The project specific improvements are as follows.

6.1 Project Specific Mitigations

The project specific improvements are as follows.

1. Construct the project sidewalk along project frontage of Mentone Blvd (State Route 38).

2. Construct the curb, gutter, and project sidewalk along project frontage of Crafton Ave.

3. Construct project driveway approach on Mentone Blvd (State Route 38), as illustrated on *Figure 13*. Mentone Blvd (State Route 38) at Project Driveway “A” will provide full access.

4. Construct project driveway approach on Crafton Ave, as illustrated on *Figure 13*. Crafton Ave Project Driveway “B” will provide full access entrance only.

5. Extend the eastbound right turn lane on Mentone Blvd (State Route 38).

6. Provide a two way left turn along Crafton Ave in to the project site at Driveway B.

7. Stripe the second southbound through lane along Crafton Ave.

DAVID EVANS AND ASSOCIATES INC.

FIGURE 13: PROJECT CONDITIONS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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AND ASSOCIATES INC.

7 APPENDICES

APPENDIX A: SCOPE MEMO/MEMORANDUM OF UNDERSTANDING
APPENDIX B: INTERSECTION CAPACITY ANALYSIS CALCULATIONS

DAVID EVANS
AND ASSOCIATES INC.

APPENDIX A: SCOPE MEMO/MEMORANDUM OF UNDERSTANDING

Trisha Munoz

From: Shanabo, Eanas - DPW <Eanas.Shanabo@dpw.sbcounty.gov>
Sent: Monday, March 18, 2019 5:01 PM
To: Robert Kilpatrick; Trisha Munoz
Cc: Ramzi Dughman; Johnson, Jeremy - DPW
Subject: Mentone Blvd. Gas station

Robert,

The left turn on Mentone Blvd. is subject to Caltrans approval, otherwise the scoping agreement for the Mentone Gas station looks acceptable.

If you have any question please let me know

Eanas Shanabo
Department of Public Works
Phone: 909-387-8186
Fax: 909-387-7809
825 E. Third Street
San Bernardino, CA 92415

Our job is to create a county in which those who reside and invest can prosper and achieve well-being.
www.SBCounty.gov

SCOPE FOR TRAFFIC STUDY

Project Name:	Mentone Blvd Gas Station

This Scope for Traffic Study acknowledges San Bernardino County Department of Public Works, Traffic Division requirements of traffic impact analysis for the project and is subject to change:

Project Address:	Southwest Corner of Mentone Boulevard and Crafton Avenue		
Project Description:	A Gasoline/Service Station with Convenience Market and Car Wash		
City:	Unincorporated area of Mentone, California		
Project Buildout Year:	2020	**Ambient or CMP Growth Rate per Year:**	2%
Closest Intersection (Xtn) to the Project			
Xtn N/S Street Name:	Crafton Ave		
Xtn E/W Street Name:	Mentone Blvd		
Thomas Guide Pg+Grid:	608-J5	**County Supervisorial District:**	1

	Engineer	Developer
Company:	David Evans and Associates, Inc	CJC Design, Inc.
Name:	Robert Kilpatrick, PE/TE	Fred Cohen
Address:	14297 Cajon Avenue, Suite 101	22485 La Palma Avenue, Suite 202
City, State, ZIP Code:	Victorville, CA 92392	Yorba Linda, CA 92887
Phone #:	(760) 524-9115	714-920-9643
Fax #:	(760) 524-9101	
E-Mail:	rkilpatrick@deainc.com	fcohen@cjccorp.com

By:		**Reviewed By:**	
Print Name: Robert Kilpatrick	**2/27/2018**	**Print Name:**	
Consultant/Developer's Representative	**Date**	**Traffic Division Representative**	**Date**

SCOPE FOR TRAFFIC STUDY

Project Name:	Mentone Blvd Gas Station

1. **Traffic Distribution**: Please insert or attach Figure(s) illustrating project trip distribution in percentages and volumes at the study intersections analyzed.

   The primary trip distribution is illustrated in Exhibit C. The Primary Project Trips are illustrated on Exhibit D1. The Pass-By Project Trips are illustrated on Exhibit D2. The Total Project Trips are illustrated on Exhibit D3.

2. **Trip Credit:** Exact amount of credit subject to approval by Traffic Division.

Transportation Demand Management (TDM)	☐YES ☒NO	No trip credit
Existing Active Land Use	☐YES ☒NO	No trip credit
Previous Land Use	☐YES ☒NO	No trip credit
Internal Trip Reduction	☐YES ☒NO	No trip credit
Pass-by Trip Reduction	☒YES ☐NO	62%,56%

3. **Related Projects:** Consultant should check with Planning in the San Bernardino County Department of Land Use Services and planning departments of adjoining Cities. Documentation of the consultation from these agencies shall be included in the traffic study. Related projects list shall be submitted to Traffic Division for our review and approval before being incorporated in the study.

4. **Freeway Analysis:** The potential traffic impact on the following Freeway(s) must be considered.
   N/A

The applicant shall consult with the State of California Department of Transportation (Caltrans) to determine the California Environmental Quality Act levels of significance with regard to traffic impacts on Caltrans' freeway facilities. This consultation shall also include a determination of Caltrans requirements for the study of traffic impacts to its facilities and the mitigation of any such impacts. This analysis must follow the most current Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) and can be obtained from http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tiguide.pdf. If Caltrans finds that the project has a significant impact on the freeway, Caltrans shall be requested to include the basis for this finding in their response. If fees are proposed to mitigate the freeway impact, Caltrans shall be requested to identify the specific project to which the fees will apply. These written comments from Caltrans shall be included with the traffic study and submitted to Public Works for review and approval. If a documented good faith effort is made to consult with Caltrans and written comments cannot be obtained from within a reasonable amount of time, an analysis of the freeway impact shall be made using HCM procedures. Appendix A of the SANBAG CMP outlines allowable modifications to these procedures. The SANBAG CMP can be viewed online at: http://www.sanbag.ca.gov/planning/subr_congestion.html

SCOPE FOR TRAFFIC STUDY

Project Name:	Mentone Blvd Gas Station

5. Trip Generation

Trip Generation Rate Source(s): ITE Trip Generation Manual	**I – Institute of Transportation Engineers; S – San Diego Traffic Generators; C – County; O – Other:**				**Edition:**	10th					
Land Use Code	**Land Use**	**Rate Based On:**	**Qty**	***AVTE vs**	**ADT**	**AM peak hour**		**PM peak hour**		**Weekend peak hour****	
						In	Out	In	Out	In	Out
ITE 945	Gasoline/Service Station with Convenience Market	I	12	Vehicle Fueling Positions	2,464	76	74	86	82		
Pass-By					1,454	47	46	48	46		
Primary Trips					1,010	29	28	38	36		

AVTE* = Average Vehicle Trip Ends; VFP = Vehicle Fueling Positions

For ITE Land Uses provide number and name of Land Use. e.g. LU 814 - Variety Store

SCOPE FOR TRAFFIC STUDY

Project Name:	Mentone Blvd Gas Station

6. Study Intersections: At minimum, the study shall include the following intersections. The list is subject to change after related projects, trip generation and distribution are determined. Consultant should check with adjoining Cities regarding their requirements in addition to the following County/City intersections. Documentation of the consultation from these agencies shall be included in the traffic study.

Xtn #	% County	Thomas Guide Page + Grid	N/S + E/W Street Name	City	Signalized	CMP
1	100	608-J5	Crafton Ave and Mentone Blvd (State Route 38)	Unincorporated area of Mentone	Yes	No

Cites to be consulted: N/A

SCOPE FOR TRAFFIC STUDY

Project Name:	Mentone Blvd Gas Station

7. Other:

Traffic counts may be conducted immediately per the following:
• Must be taken on Tuesdays, Wednesdays or Thursdays.
• Must exclude holidays, and the first weekdays before and after the holiday.
• Must be taken on days when local schools or colleges are in session.
• Must be taken on days of good weather, and avoid atypical conditions (e.g., road construction, detours, or major traffic incidents).
• Traffic counts used for other traffic studies in the area shall **NOT** be reused again, unless 25% of the counts conducted for that particular traffic study are validated with new counts. The difference in volumes between the old and new counts at each corresponding movement should not be more than 10%.
• New traffic counts shall be checked to ensure the difference in volumes at corresponding approaches, if applicable, between two adjacent intersections is no more than 10% unless the difference can be justified.
• For all proposed mitigation measures, a conceptual plan for the improvements shall be submitted to our Traffic Studies section for review and approval prior to the approval of the Traffic Impact Analysis. All proposed improvements shall be within the right-of-way.
• For all cumulative mitigation measures, a cost estimate for the improvement shall be submitted.

This analysis must follow the most current Traffic Impact Study Guidelines for the County as states in the County's Road Planning and Design Standards.

8. Fees:

The County charges on an actual cost basis for review of traffic studies. An initial deposit of $3,400 is required at the time that a land use application is filed with the Department of Land Use Services. If the review costs exceed the initial deposit, the applicant will be expected to provide additional funds and the review will be suspended until the additional funds are deposited.

SCOPE FOR TRAFFIC STUDY

Project Name:	Mentone Blvd Gas Station

9. Contact Information:

Please submit a signed copy of this MOU for approval by the Traffic Division. The MOU may be submitted in person, by fax, by e-mail or by US Mail to:

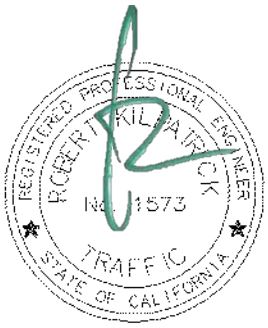
County of San Bernardino
Dept. of Public Works, Traffic Division
825 E. 3rd Street, Rm. 115
San Bernardino, CA 92415-0835

Phone: 909-387-8186
Fax: 909-387-7809
E-mail: epetre@dpw.sbcounty.gov (Ed Petre)

DAVID EVANS AND ASSOCIATES INC.

February 27, 2019 Job No. CJCD0000-1001

MEMORANDUM



To: Fred Cohen
CJC Design, Inc.
22485 La Palma Avenue, Suite 202
Yorba Linda, CA 92887

From: Robert Kilpatrick, PE/TE
Senior Project Manager / Senior Associate

RE: Traffic Scope Outline – Mentone Blvd Gas Station – Unincorporated Community of Mentone, San Bernardino County, California

This memorandum presents the scope of the traffic impact analysis for the Proposed Project Commercial Development consisting of a Gasoline/Service Station with Convenience Market and Car Wash. The purpose of the scope is to assess the requirements of a detailed Traffic Study for the project by the County of San Bernardino staff.

A. Project Description

The proposed project is located at the southwest corner of Mentone Blvd and Crafton Ave, in the unincorporated community of Mentone, San Bernardino County, California as illustrated in *Exhibit A.* The project is bound by Mentone Blvd and commercial development to the north, Single Family Residential Development to the south, Crafton Ave and a corner market to the east, and undeveloped land and single family residential to the west. *Exhibit B* illustrates the proposed Site Plan. As illustrated, access to the site will be obtained from a driveway along Mentone Blvd and a second driveway along Crafton Ave.

B. Project Trip Generation

Table A summarizes the estimated trip generation for the project site during the AM (7-9 AM) peak and PM (4-6 PM) peak periods. The trip generation factors for the Gasoline/Service Station with Convenience Market were obtained from the ITE Trip Generation Manual, 10th Edition and based on land use 945. The Gasoline/Service Station with Convenience Market trip generation rates include ancillary facilities such as a car wash. Due to the nature of the land use a Pass-By Trip factor (trips passing by the project on local streets) were applied to the trip generation by land use. The Pass-By Trip factors are from the 10th Edition of the Institute of Transportation Engineers trip generation report.

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Table A: Project Trip Generation

	Use		AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
1	**Gasoline/Service Station with Convenience Market**							
	(ITE 945) Per Fueling Position	205.36	6.36	6.11	12.47	7.13	6.86	13.99
	12 Fueling Positions	2,464	76	74	150	86	82	168
	Pass-By (62%, 56%)	1,454	47	46	93	48	46	94
	Primary Trips	**1,010**	29	28	**57**	38	36	**74**

Source: "Trip Generation Manual, Institute of Transportation Engineers", 10th Edition

It is estimated that the project will generate 57 AM primary and 74 PM primary peak hour trips.

C. Project Trip Distribution and Assignment

To address the impacts of the estimated project traffic, the trips were distributed and assigned to the surrounding streets and study intersections. The project traffic was distributed based on the anticipated project utilization. Once the distribution pattern was established, project trips were assigned to the area streets that serve the project.

To address the impacts of the estimated entry/exit trips at the project driveways, the trips were distributed and assigned to each driveway. The project was distributed based on the anticipated project traffic flows and surrounding area utilization.

The project trips are distributed based on the local area network streets. The primary trip distribution is illustrated in *Exhibit C.* The Primary Project Trips are illustrated on *Exhibit D1*. The Pass-By Project Trips are illustrated on *Exhibit D2.* The Total Project Trips are illustrated on *Exhibit D3.*

D. Study Intersections

The proposed project is located at the southeast of the intersection of Mentone Blvd (State Route 38) at Crafton Ave in the unincorporated community of Mentone, San Bernardino, California. We examined the trips distributed to one existing intersection in the study area;

1. Mentone Blvd (State Route 38) at Crafton Ave
2. Mentone Blvd (State Route 38) at Project Driveway "A" (Future Intersection)
3. Crafton Ave at Project Driveway "B" (Future Intersection)

The intersection of Mentone Blvd (State Route 38) at Crafton Ave is signalized.

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E. Traffic Study Scenarios

The following is an outline of the Traffic Study analysis scenarios;

1. Existing Conditions (AM (7-9 AM) peak and PM (4-6 PM) peak periods)

2. Existing plus Project Conditions
    a. Existing
    b. Growth (assume growth rate of 2% per year)
    c. Project Traffic

3. Background Conditions
    a. Existing
    b. Growth (assume growth rate of 2% per year)
    c. Related Projects in the vicinity

4. Project Conditions
    a. Existing
    b. Growth (assume growth rate of 2% per year)
    c. Project Traffic
    d. Related Projects in the vicinity

If you have any questions or comments, please feel free to contact us.

Attachments
1. Exhibit A - Vicinity Map
2. Exhibit B - Site Plan
3. Exhibit C - Project Trip Distribution
4. Exhibit D1 – Primary Project Trips
5. Exhibit D2 – Pass-By Project Trips
6. Exhibit D3 – Total Project Trips

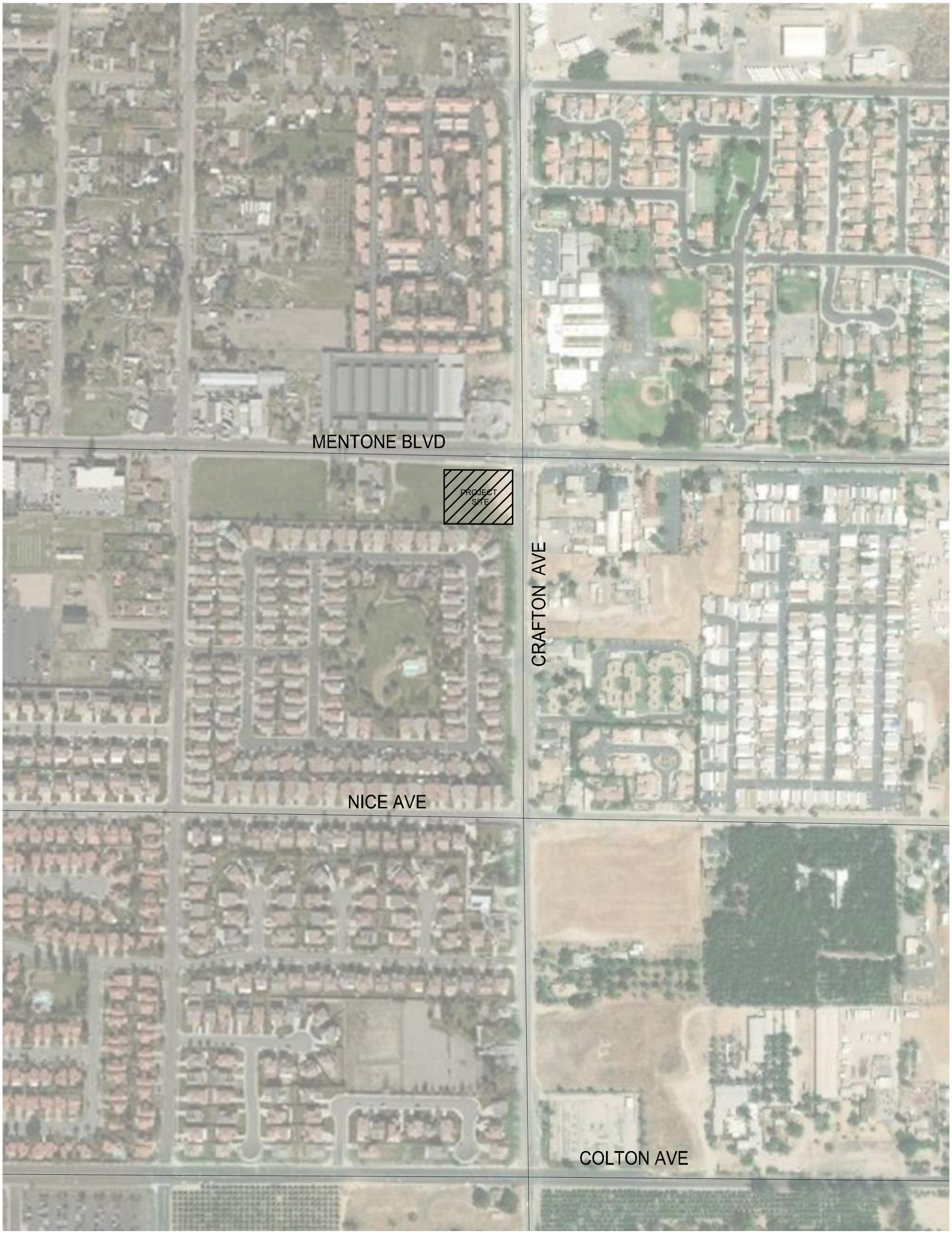

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EXHIBIT A: VICINITY MAP
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

Drawing Name: P:\C\CJCD00000001\0400CAD\TT\EXHIBITS\Scope\Exhibit A.dwg
Last Opened: Feb 25, 2019 - 11:00am by: Tnm

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MENTONE BLVD

CRAFTON AVE

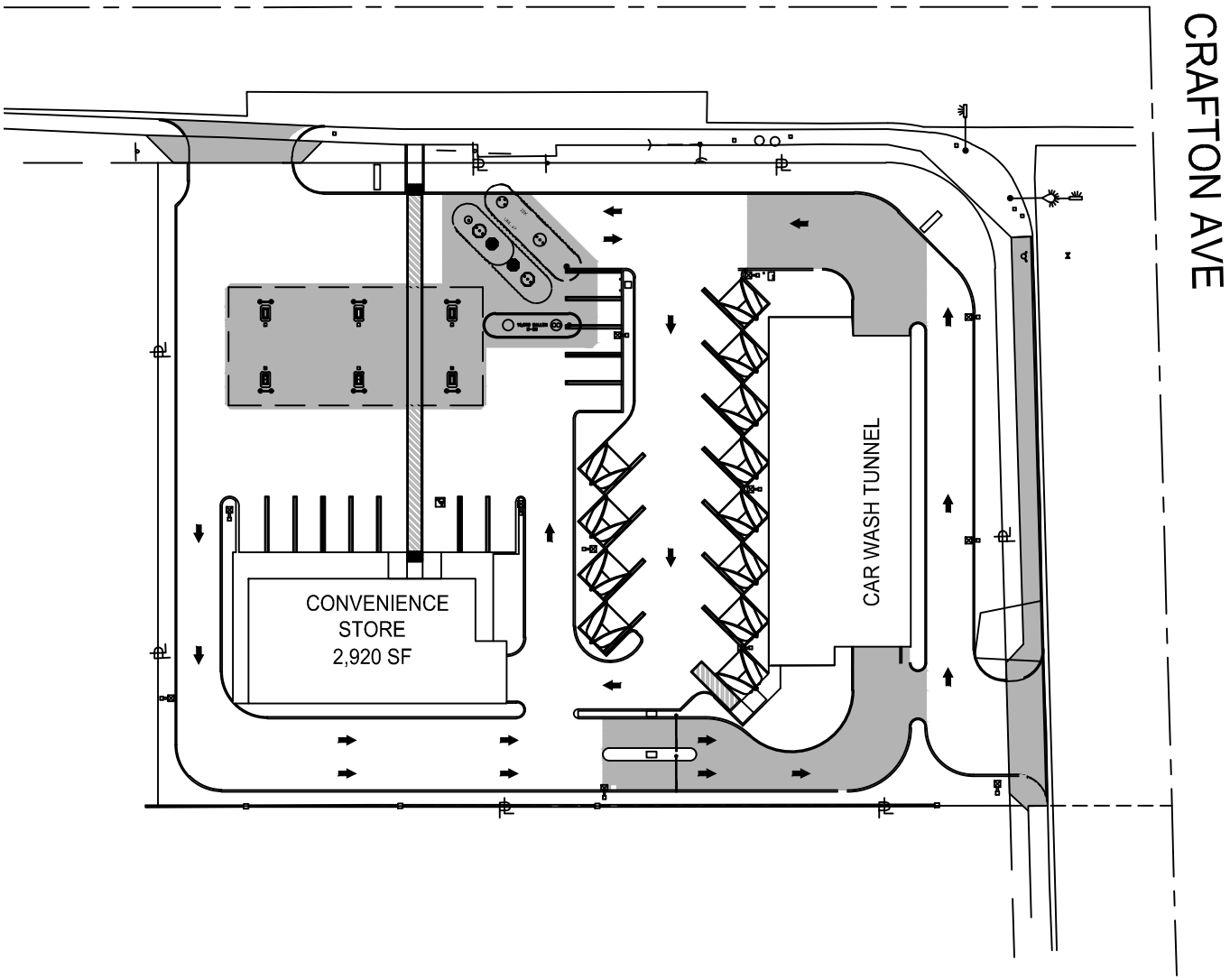

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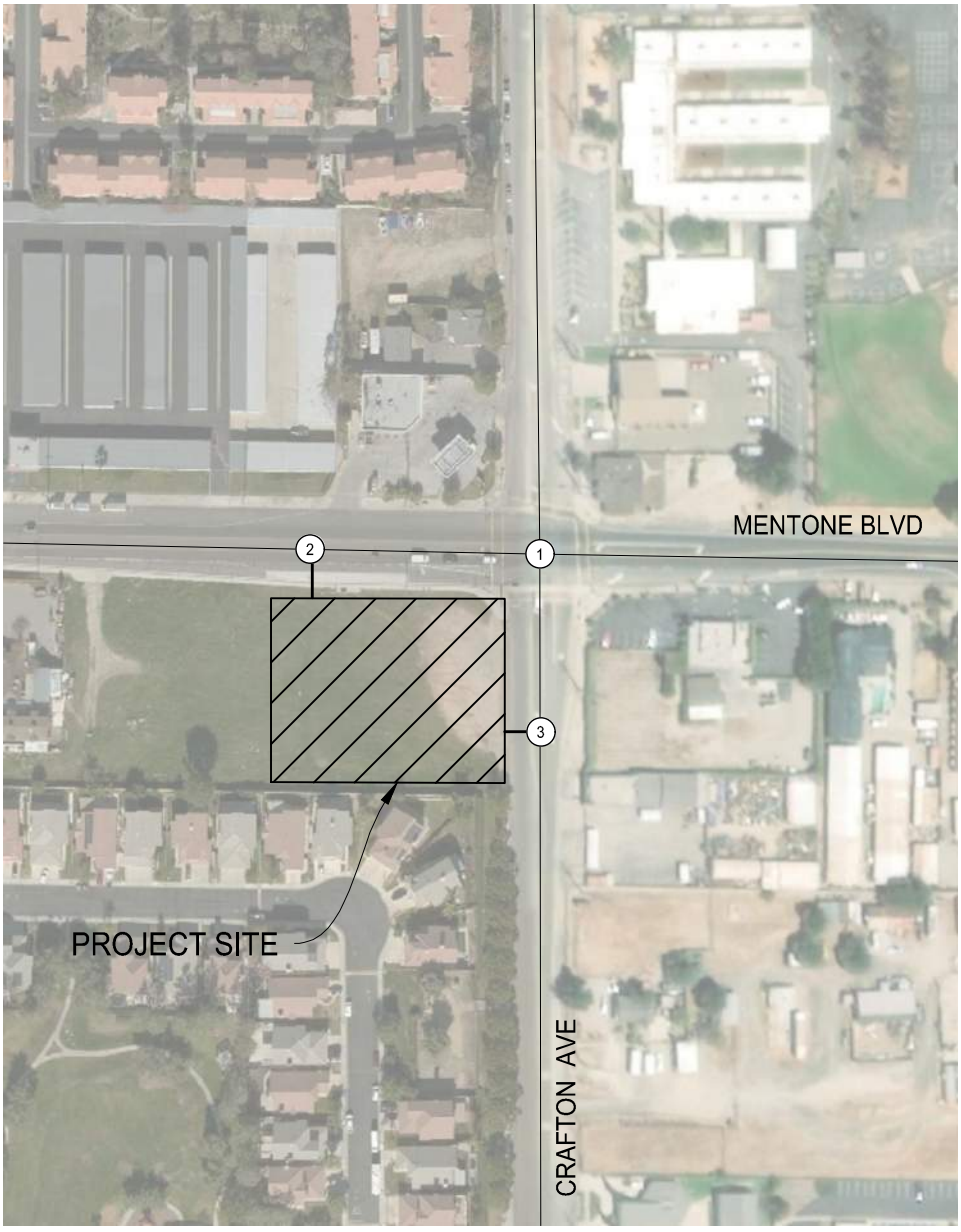
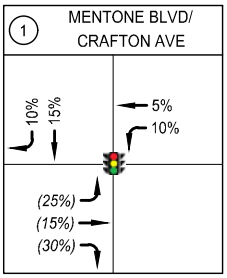
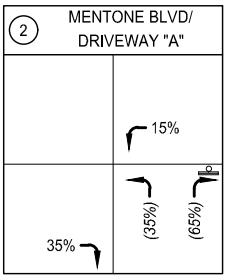
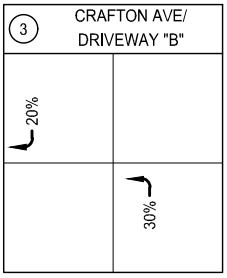
EXHIBIT B: SITE MAP
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA









LEGEND

XX% - GENERAL PROJECT TRIP DISTRIBUTION

XX% - INBOUND SPECIFIC PROJECT TRIP PERCENTAGE

(XX%) - OUTBOUND SPECIFIC PROJECT TRIP PERCENTAGE

(#) - STUDY INTERSECTIONS

- SIGNALIZED INTERSECTION

- STOP CONTROLLED APPROACH

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EXHIBIT C: PROJECT TRIP DISTRIBUTION
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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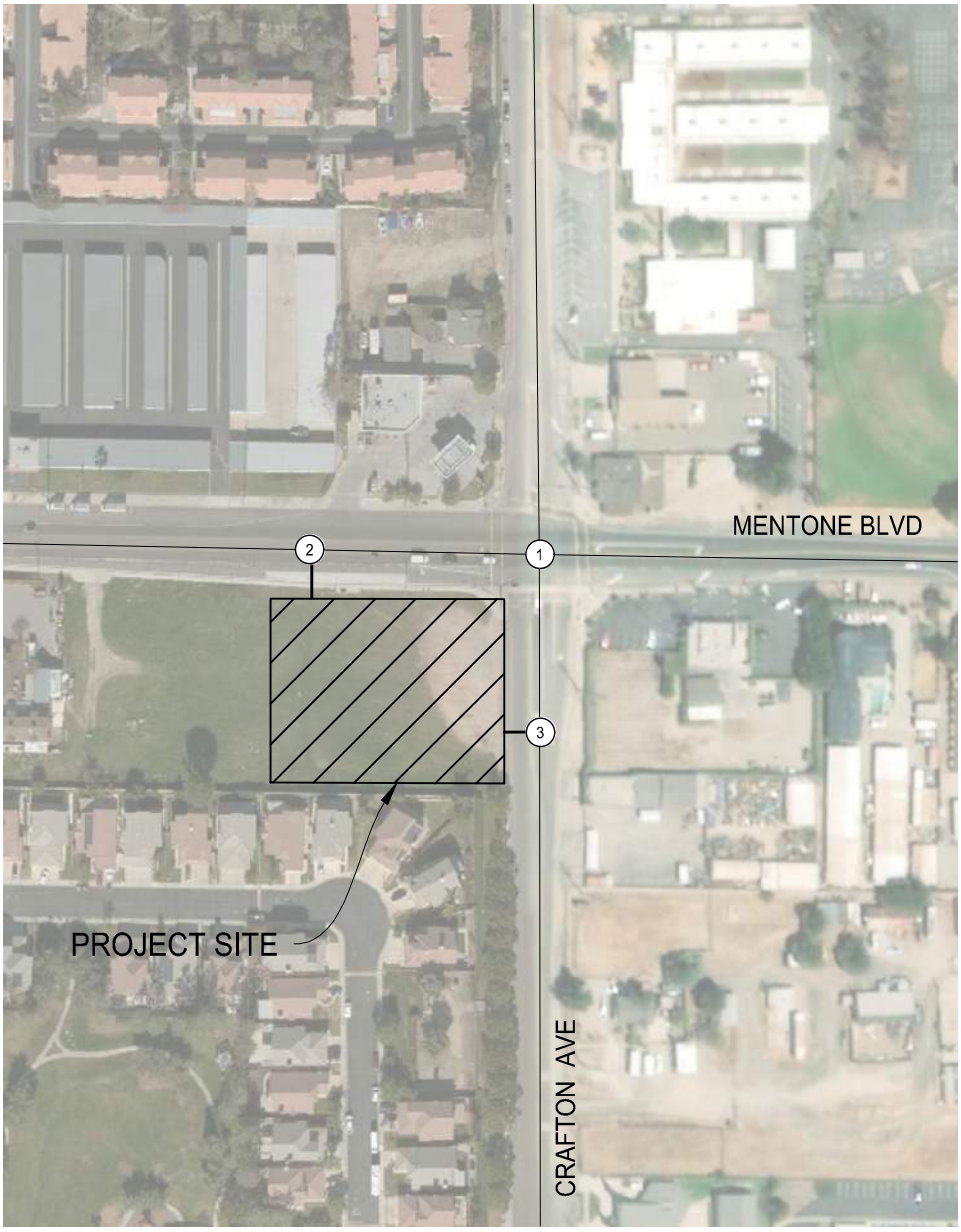

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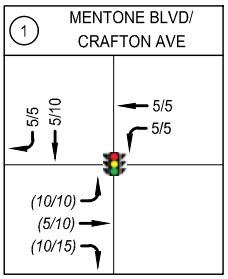

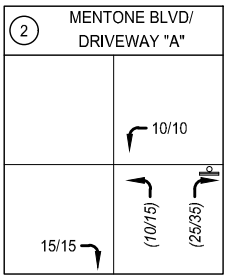

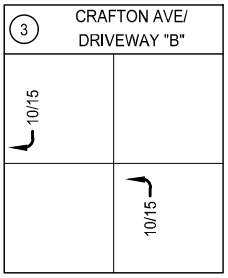

PRIMARY PROJECT TRIPS

AM PEAK PERIOD - 29 IN / 28 OUT
PM PEAK PERIOD - 38 IN / 36 OUT

LEGEND

XX/XX - AM/PM PROJECT TRIP
(#) - STUDY INTERSECTIONS
- SIGNALIZED INTERSECTION
- STOP CONTROLLED APPROACH

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EXHIBIT D1: PRIMARY PROJECT TRIPS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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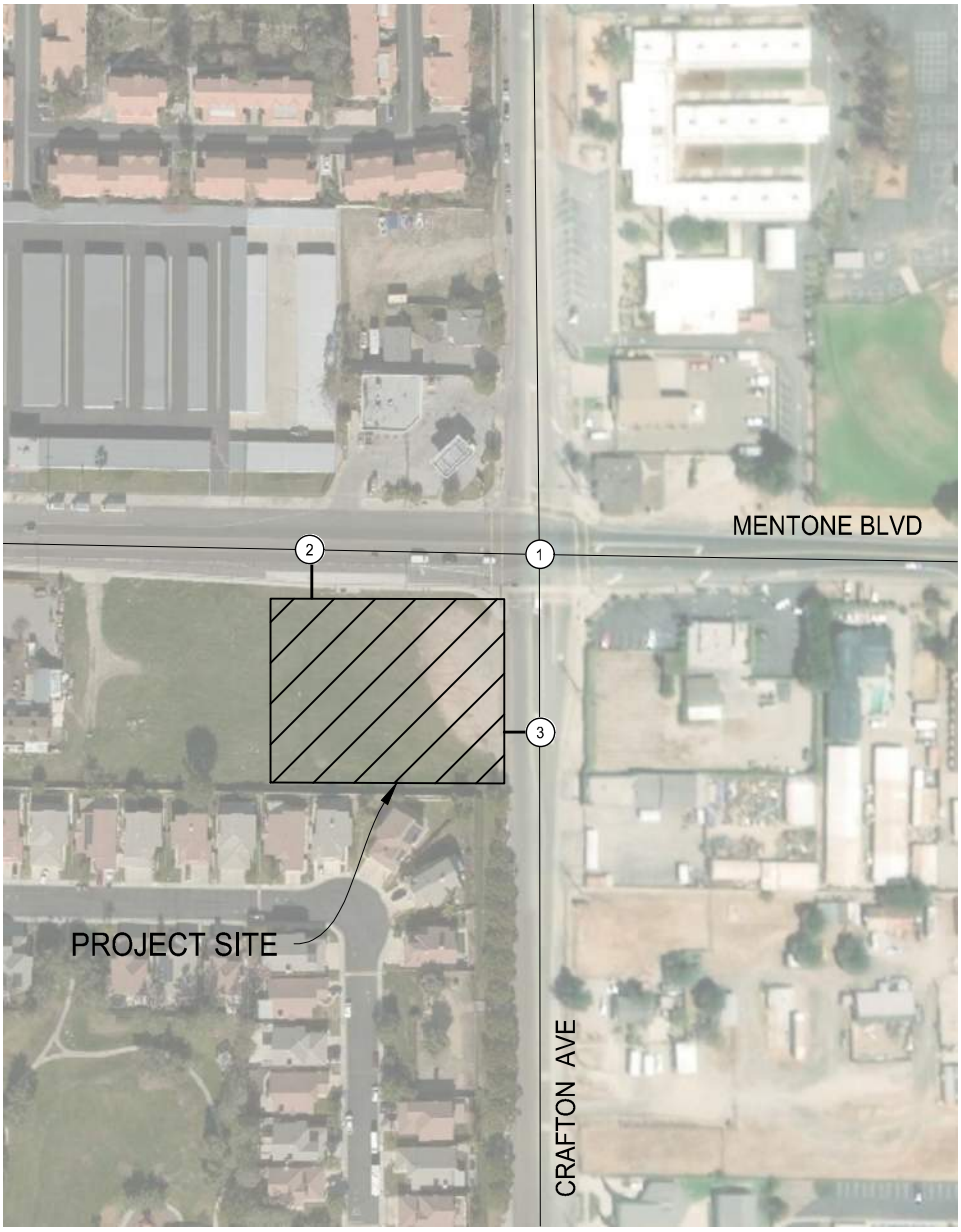

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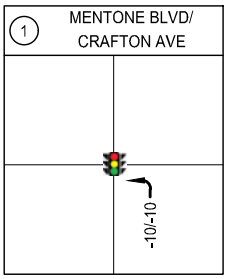

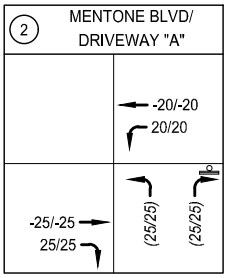

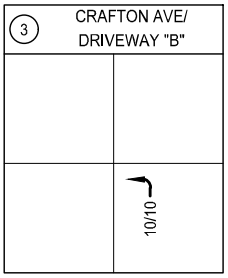

PASS-BY PROJECT TRIPS

AM PEAK PERIOD - 47 IN / 46 OUT
PM PEAK PERIOD - 48 IN / 46 OUT

LEGEND

XX/XX - AM/PM PROJECT TRIP
(#) - STUDY INTERSECTIONS
- SIGNALIZED INTERSECTION
- STOP CONTROLLED APPROACH

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EXHIBIT D2: PASS-BY PROJECT TRIPS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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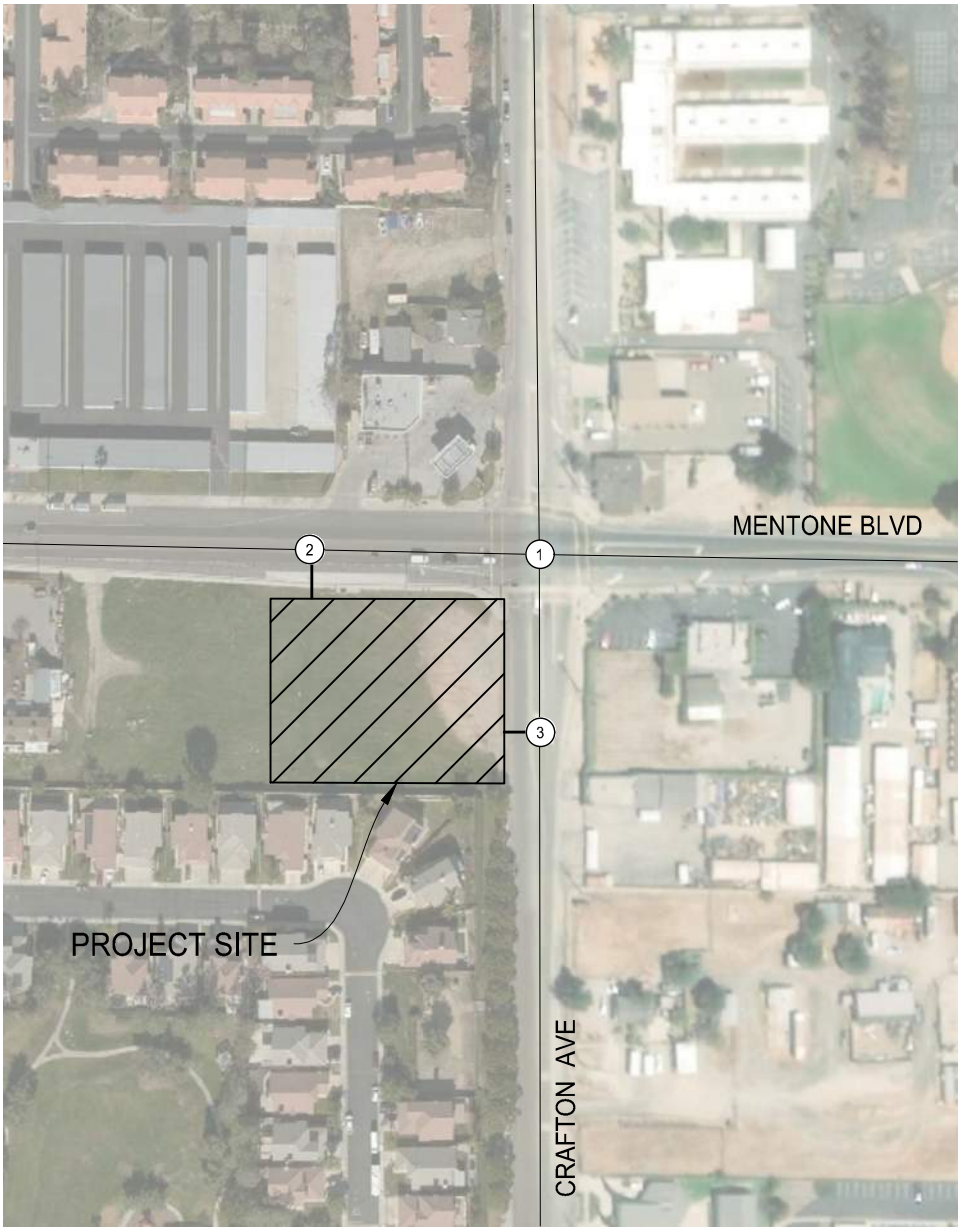

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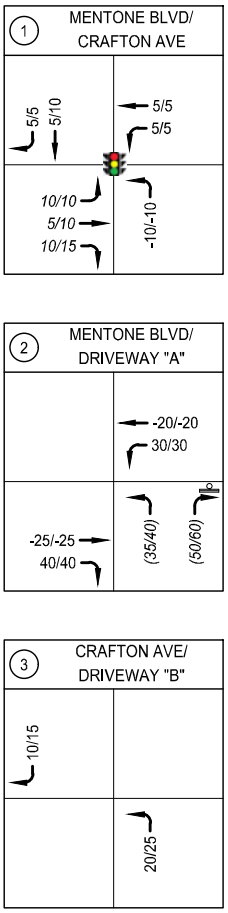

PROJECT TRIPS

AM PEAK PERIOD - 76 IN / 74 OUT
PM PEAK PERIOD - 86 IN / 82 OUT

LEGEND

XX/XX - AM/PM PROJECT TRIP
(#) - STUDY INTERSECTIONS
- SIGNALIZED INTERSECTION
- STOP CONTROLLED APPROACH

DAVID EVANS AND ASSOCIATES INC.

EXHIBIT D3: TOTAL PROJECT TRIPS
MENTONE BLVD GAS STATION
MENTONE, CALIFORNIA

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AND ASSOCIATES INC.

APPENDIX B: INTERSECTION CAPACITY ANALYSIS CALCULATIONS

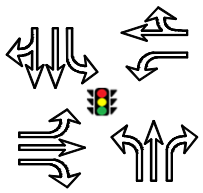
DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	15-May-19	CJCD0000-0001	1 OF 2

E/W STREET : MENTONE BLVD/SR 38
N/S STREET : CRAFTON AVE
CONDITION : AM PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH PER YEAR : 2.0%

CONDITION DIAGRAMS



EXISTING GEOMETRICS **PROPOSED GEOMETRICS**

TURN MOVEMENTS

CONDITION	EXISTING CONDITIONS TRAFFIC	PROJECT TRIPS	EXISTING + PROJECT TRAFFIC	AMBIENT GROWTH	BACKGROUND CONDITIONS TRAFFIC	PROJECT CONDITIONS TRAFFIC
	1		3		5	7
MENTONE BLVD/SR 38						
EB LEFT	80	10	90	5	85	95
EB THRU	390	5	395	10	400	405
EB RIGHT	65	10	75	5	70	80
WB LEFT	50	5	55	5	55	60
WB THRU	450	5	455	10	460	465
WB RIGHT	70	0	70	5	75	75
CRAFTON AVE						
NB LEFT	35	-10	25	5	40	30
NB THRU	60	0	60	5	65	65
NB RIGHT	45	0	45	5	50	50
SB LEFT	50	0	50	5	55	55
SB THRU	65	5	70	5	70	75
SB RIGHT	55	5	60	5	60	65
TOTALS	**1415**	**35**	**1450**	**70**	**1485**	**1520**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TNM	15-May-19	CJCD0000-0001	2 OF 2

E/W STREET : MENTONE BLVD/SR 38 N/S STREET : CRAFTON AVE
CONDITION : AM PEAK HOUR PHF : 0.97

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
19	12	19	0	1	1	0	0	0	0	0	1
10	14	9	2	2	1	0	0	0	0	0	0
13	20	9	0	0	0	1	1	0	0	0	0
8	15	9	0	0	0	0	0	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
9	11	8	0	0	0	0	1	0	1	2	1
11	16	8	0	0	0	0	0	0	0	0	0
12	16	6	1	2	1	0	0	0	0	0	1
8	12	8	0	0	0	0	0	0	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
27	100	10	1	2	0	0	0	0	0	1	0
16	120	12	0	1	0	0	1	0	0	0	0
12	112	13	0	2	0	0	0	0	0	0	0
12	107	12	0	0	0	0	2	0	0	1	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
14	82	37	0	0	0	0	0	0	0	1	0
15	91	14	0	1	0	0	1	0	0	4	0
19	99	17	0	0	0	0	0	0	0	0	0
14	106	12	0	2	0	0	0	0	0	1	0

	Truck Volumes	Auto Volumes	Totals	Rounded Totals	Truck Percentage
MENTONE BLVD/SR 38					
EBL	0	80	**80**	**80**	**5%**
EBTH	10	378	**388**	**390**	**5%**
EBR	0	62	**62**	**65**	**5%**
WBL	0	47	**47**	**50**	**5%**
WBTH	10	439	**449**	**450**	**5%**
WBR	1	67	**68**	**70**	**5%**
CRAFTON AVE					
NBL	3	30	**33**	**35**	**10%**
NBTH	5	55	**60**	**60**	**10%**
NBR	2	40	**42**	**45**	**5%**
SBL	3	46	**49**	**50**	**10%**
SBTH	4	61	**65**	**65**	**10%**
SBR	3	50	**53**	**55**	**10%**

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: MENTONE
EAST-WEST STREET: CRAFTON
JURISDICTION: MENTONE

DATE: 03-27-19

PEAK HOUR: 07:45AM

NORTH LEG

TOTAL: 167

Rt	Thru	Lt	
53	65	49	Total
19	13	21	1st
12	16	10	2nd
14	21	9	3rd
8	15	9	4th

EAST LEG TOTAL: 564

	1st	2nd	3rd	4th	Total
Rt	28	16	12	12	68
Thru	103	122	114	110	449
Lt	10	12	13	12	47

WEST LEG TOTAL: 530

Total	1st	2nd	3rd	4th	
80	37	14	17	12	Lt
388	83	97	99	109	Thru
62	14	15	19	14	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.79
SOUTH LEG = 0.87
EAST LEG = 0.94
WEST LEG = 0.98

ALL LEGS = 0.97

SOUTH LEG

TOTAL: 135

	Lt	Thru	Rt
1st	9	14	10
2nd	8	16	11
3rd	8	18	13
4th	8	12	8
Total	33	60	42

HOUR TOTAL: 1,396

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : MENTONE — MENTONE

EAST-WEST STREET : CRAFTON — 03-27-19

BEGINNING TIME : 07:00AM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
NORTH LEG												
6	8	4	0	0	0	0	0	1	0	0	0	19
10	13	8	0	0	0	0	0	0	0	1	0	32
10	9	12	0	0	0	0	1	0	0	0	0	32
19	12	19	0	1	1	0	0	0	0	0	1	53
10	14	9	2	2	1	0	0	0	0	0	0	38
13	20	9	0	0	0	1	1	0	0	0	0	44
8	15	9	0	0	0	0	0	0	0	0	0	32
11	15	6	0	0	0	0	0	0	0	0	0	32
87	106	76	2	3	2	1	2	1	0	1	1	282
SOUTH LEG												
9	5	4	0	0	0	0	1	0	0	0	1	20
13	12	7	0	1	1	0	0	0	0	0	0	34
10	19	12	0	2	0	0	1	1	0	0	0	45
9	11	8	0	0	0	0	1	0	1	2	1	33
11	16	8	0	0	0	0	0	0	0	0	0	35
12	16	6	1	2	1	0	0	0	0	0	1	39
8	12	8	0	0	0	0	0	0	0	0	0	28
8	13	12	0	1	0	0	0	0	1	0	0	35
80	104	65	1	6	2	0	3	1	2	2	3	269
EAST LEG												
6	49	6	0	1	0	0	1	0	0	2	0	65
5	65	6	0	1	0	0	0	0	0	0	0	77
22	77	14	2	0	0	0	1	0	0	1	0	117
27	100	10	1	2	0	0	0	0	0	1	0	141
16	120	12	0	1	0	0	1	0	0	0	0	150
12	112	13	0	2	0	0	0	0	0	0	0	139
12	107	12	0	0	0	0	2	0	0	1	0	134
10	114	11	0	1	0	0	0	0	0	1	0	137
110	744	84	3	8	0	0	5	0	0	6	0	960
WEST LEG												
9	44	6	0	1	0	0	1	0	0	1	0	62
16	56	9	0	0	1	0	0	0	0	3	0	85
10	68	21	0	1	2	0	0	0	0	0	0	102
14	82	37	0	0	0	0	0	0	0	1	0	134
15	91	14	0	1	0	0	1	0	0	4	0	126
19	99	17	0	0	0	0	0	0	0	0	0	135
14	106	12	0	2	0	0	0	0	0	1	0	135
12	88	8	0	0	0	0	0	0	0	0	0	108
109	634	124	0	5	3	0	2	0	0	10	0	887

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: MENTONE

EAST-WEST STREET: CRAFTON

TIME: 07:00AM-08:00AM DATE: 03-27-19

NORTH LEG

Rt	Thru	Lt	
45	45	46	Total
6	8	5	1st
10	14	8	2nd
10	10	12	3rd
19	13	21	4th

	1st	2nd	3rd	4th	Total
Rt	6	5	24	28	63
Thru	53	66	79	103	301
Lt	6	6	14	10	36

Total	1st	2nd	3rd	4th	
76	6	10	23	37	Lt
258	47	59	69	83	Thru
49	9	16	10	14	Rt

	Lt	Thru	Rt
1st	5	6	9
2nd	8	13	13
3rd	13	22	10
4th	9	14	10
Total	35	55	42

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: MENTONE

EAST-WEST STREET: CRAFTON

TIME: 08:00AM-09:00AM DATE: 03-27-19

NORTH LEG

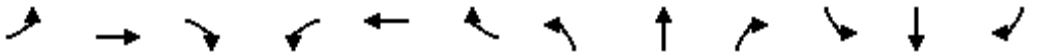
45	67	34	Total
12	16	10	1st
14	21	9	2nd
8	15	9	3rd
11	15	6	4th
Rt	Thru	Lt	

Rt	16	12	12	10	50
Thru	122	114	110	116	462
Lt	12	13	12	11	48
	1st	2nd	3rd	4th	Total

Total	1st	2nd	3rd	4th	
51	14	17	12	8	Lt
393	97	99	109	88	Thru
60	15	19	14	12	Rt

	Lt	Thru	Rt
1st	8	16	11
2nd	8	18	13
3rd	8	12	8
4th	12	14	9
Total	36	60	41

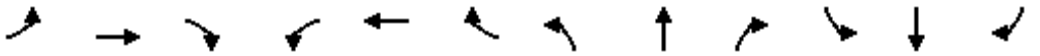
Prepared by NEWPORT TRAFFIC STUDIES



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	390	65	50	450	70	35	60	45	50	65	55
Future Volume (veh/h)	80	390	65	50	450	70	35	60	45	50	65	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1752	1752	1826	1752	1752	1752
Adj Flow Rate, veh/h	82	402	67	52	464	72	36	62	46	52	67	57
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5	5	5	5	10	10	5	10	10	10
Cap, veh/h	103	733	621	76	595	92	362	338	299	371	347	265
Arrive On Green	0.06	0.40	0.40	0.04	0.39	0.39	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1739	1826	1547	1739	1543	239	1187	1752	1547	1204	1794	1374
Grp Volume(v), veh/h	82	402	67	52	0	536	36	62	46	52	62	62
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	0	1783	1187	1752	1547	1204	1664	1504
Q Serve(g_s), s	1.9	7.0	1.1	1.2	0.0	10.9	1.1	1.2	1.0	1.6	1.3	1.4
Cycle Q Clear(g_c), s	1.9	7.0	1.1	1.2	0.0	10.9	2.5	1.2	1.0	2.8	1.3	1.4
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.91
Lane Grp Cap(c), veh/h	103	733	621	76	0	688	362	338	299	371	321	291
V/C Ratio(X)	0.80	0.55	0.11	0.69	0.00	0.78	0.10	0.18	0.15	0.14	0.19	0.21
Avail Cap(c_a), veh/h	294	1366	1158	252	0	1291	362	338	299	371	321	291
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	9.5	7.8	19.5	0.0	11.2	15.1	14.0	13.9	15.1	14.0	14.1
Incr Delay (d2), s/veh	13.2	0.6	0.1	10.5	0.0	2.0	0.5	1.2	1.1	0.8	1.3	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.0	0.3	0.6	0.0	3.2	0.3	0.5	0.3	0.4	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	10.2	7.8	30.1	0.0	13.1	15.7	15.2	15.0	15.9	15.3	15.8
LnGrp LOS	C	B	A	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		551			588			144			176	
Approach Delay, s/veh		13.2			14.6			15.2			15.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	21.6		13.0	7.4	21.0		13.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	31.0		8.0	7.0	30.0		8.0				
Max Q Clear Time (g_c+I1), s	3.2	9.0		4.8	3.9	12.9		4.5				
Green Ext Time (p_c), s	0.0	2.5		0.2	0.0	3.0		0.1				

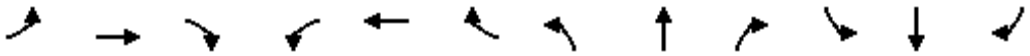
Intersection Summary												
HCM 6th Ctrl Delay			14.3									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	395	75	55	455	70	25	60	45	50	70	60
Future Volume (veh/h)	90	395	75	55	455	70	25	60	45	50	70	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1752	1752	1826	1752	1752	1752
Adj Flow Rate, veh/h	93	407	77	57	469	72	26	62	46	52	72	62
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5	5	5	5	10	10	5	10	10	10
Cap, veh/h	117	745	631	80	598	92	349	333	294	364	339	263
Arrive On Green	0.07	0.41	0.41	0.05	0.39	0.39	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1739	1826	1547	1739	1546	237	1176	1752	1547	1204	1783	1384
Grp Volume(v), veh/h	93	407	77	57	0	541	26	62	46	52	67	67
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	0	1783	1176	1752	1547	1204	1664	1503
Q Serve(g_s), s	2.2	7.2	1.3	1.4	0.0	11.2	0.8	1.3	1.0	1.6	1.4	1.6
Cycle Q Clear(g_c), s	2.2	7.2	1.3	1.4	0.0	11.2	2.4	1.3	1.0	2.8	1.4	1.6
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	117	745	631	80	0	690	349	333	294	364	316	285
V/C Ratio(X)	0.80	0.55	0.12	0.71	0.00	0.78	0.07	0.19	0.16	0.14	0.21	0.24
Avail Cap(c_a), veh/h	289	1343	1138	248	0	1270	349	333	294	364	316	285
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	9.5	7.8	19.8	0.0	11.4	15.5	14.3	14.2	15.5	14.4	14.5
Incr Delay (d2), s/veh	11.6	0.6	0.1	10.9	0.0	2.0	0.4	1.2	1.1	0.8	1.5	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	0.3	0.7	0.0	3.4	0.2	0.5	0.4	0.4	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	10.1	7.9	30.7	0.0	13.4	15.9	15.6	15.4	16.4	15.9	16.4
LnGrp LOS	C	B	A	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		577			598			134			186	
Approach Delay, s/veh		13.2			15.0			15.6			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	22.2		13.0	7.8	21.3		13.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	31.0		8.0	7.0	30.0		8.0				
Max Q Clear Time (g_c+I1), s	3.4	9.2		4.8	4.2	13.2		4.4				
Green Ext Time (p_c), s	0.0	2.5		0.2	0.0	3.1		0.1				

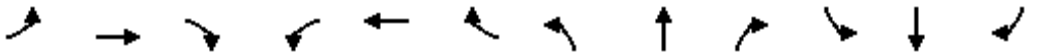
Intersection Summary		
HCM 6th Ctrl Delay		14.5
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	400	70	55	460	75	40	65	50	55	70	60
Future Volume (veh/h)	85	400	70	55	460	75	40	65	50	55	70	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1752	1752	1826	1752	1752	1752
Adj Flow Rate, veh/h	88	412	72	57	474	77	41	67	52	57	72	62
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5	5	5	5	10	10	5	10	10	10
Cap, veh/h	110	749	634	80	602	98	348	331	293	357	337	262
Arrive On Green	0.06	0.41	0.41	0.05	0.39	0.39	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1739	1826	1547	1739	1532	249	1176	1752	1547	1192	1783	1384
Grp Volume(v), veh/h	88	412	72	57	0	551	41	67	52	57	67	67
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	0	1781	1176	1752	1547	1192	1664	1503
Q Serve(g_s), s	2.1	7.3	1.2	1.4	0.0	11.5	1.3	1.4	1.2	1.8	1.4	1.6
Cycle Q Clear(g_c), s	2.1	7.3	1.2	1.4	0.0	11.5	2.9	1.4	1.2	3.2	1.4	1.6
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.92
Lane Grp Cap(c), veh/h	110	749	634	80	0	700	348	331	293	357	315	284
V/C Ratio(X)	0.80	0.55	0.11	0.71	0.00	0.79	0.12	0.20	0.18	0.16	0.21	0.24
Avail Cap(c_a), veh/h	288	1338	1134	247	0	1263	348	331	293	357	315	284
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	9.5	7.7	19.9	0.0	11.3	15.8	14.5	14.4	15.8	14.5	14.6
Incr Delay (d2), s/veh	12.4	0.6	0.1	10.9	0.0	2.0	0.7	1.4	1.3	1.0	1.5	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	0.3	0.7	0.0	3.4	0.3	0.5	0.4	0.4	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	10.1	7.8	30.8	0.0	13.3	16.5	15.8	15.7	16.7	16.0	16.5
LnGrp LOS	C	B	A	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		572			608			160			191	
Approach Delay, s/veh		13.2			14.9			16.0			16.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	22.3		13.0	7.7	21.6		13.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	31.0		8.0	7.0	30.0		8.0				
Max Q Clear Time (g_c+I1), s	3.4	9.3		5.2	4.1	13.5		4.9				
Green Ext Time (p_c), s	0.0	2.6		0.2	0.0	3.1		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			14.6									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	405	80	60	465	75	30	65	50	55	75	65
Future Volume (veh/h)	95	405	80	60	465	75	30	65	50	55	75	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1752	1752	1826	1752	1752	1752
Adj Flow Rate, veh/h	98	418	82	62	479	77	31	67	52	57	77	67
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5	5	5	5	10	10	5	10	10	10
Cap, veh/h	124	760	644	85	605	97	336	326	288	351	330	259
Arrive On Green	0.07	0.42	0.42	0.05	0.39	0.39	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1739	1826	1547	1739	1535	247	1165	1752	1547	1192	1773	1392
Grp Volume(v), veh/h	98	418	82	62	0	556	31	67	52	57	72	72
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	0	1781	1165	1752	1547	1192	1664	1501
Q Serve(g_s), s	2.4	7.4	1.4	1.5	0.0	11.8	1.0	1.4	1.2	1.8	1.6	1.8
Cycle Q Clear(g_c), s	2.4	7.4	1.4	1.5	0.0	11.8	2.8	1.4	1.2	3.2	1.6	1.8
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.93
Lane Grp Cap(c), veh/h	124	760	644	85	0	702	336	326	288	351	310	279
V/C Ratio(X)	0.79	0.55	0.13	0.73	0.00	0.79	0.09	0.21	0.18	0.16	0.23	0.26
Avail Cap(c_a), veh/h	283	1316	1116	243	0	1243	336	326	288	351	310	279
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	9.5	7.7	20.2	0.0	11.5	16.2	14.8	14.7	16.2	14.9	15.0
Incr Delay (d2), s/veh	10.8	0.6	0.1	11.5	0.0	2.1	0.5	1.4	1.4	1.0	1.7	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.1	0.3	0.8	0.0	3.5	0.2	0.5	0.4	0.5	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	10.1	7.8	31.7	0.0	13.5	16.7	16.2	16.1	17.2	16.6	17.2
LnGrp LOS	C	B	A	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		598			618			150			201	
Approach Delay, s/veh		13.1			15.4			16.3			17.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	22.9		13.0	8.1	21.9		13.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	31.0		8.0	7.0	30.0		8.0				
Max Q Clear Time (g_c+I1), s	3.5	9.4		5.2	4.4	13.8		4.8				
Green Ext Time (p_c), s	0.0	2.6		0.2	0.0	3.1		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			14.8									
HCM 6th LOS			B									

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	15-May-19	CJCD0000-0001	1 OF 2

E/W STREET : MENTONE BLVD/SR 38
N/S STREET : CRAFTON AVE
CONDITION : PM PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH PER YEAR : 2.0%

TURN MOVEMENTS

CONDITION	EXISTING CONDITIONS TRAFFIC	PROJECT TRIPS	EXISTING + PROJECT TRAFFIC	AMBIENT GROWTH	BACKGROUND CONDITIONS TRAFFIC	PROJECT CONDITIONS TRAFFIC
	2		4		6	8
MENTONE BLVD/SR 38						
EB LEFT	75	10	85	5	80	90
EB THRU	520	10	530	15	535	545
EB RIGHT	65	15	80	5	70	85
WB LEFT	40	5	45	5	45	50
WB THRU	290	5	295	10	300	305
WB RIGHT	25	0	25	5	30	30
CRAFTON AVE						
NB LEFT	115	-10	105	5	120	110
NB THRU	65	0	65	5	70	70
NB RIGHT	75	0	75	5	80	80
SB LEFT	60	0	60	5	65	65
SB THRU	35	10	45	5	40	50
SB RIGHT	50	5	55	5	55	60
TOTALS	**1415**	**50**	**1465**	**75**	**1490**	**1540**

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TNM	15-May-19	CJCD0000-0001	2 OF 2

E/W STREET : MENTONE BLVD/SR 38 N/S STREET : CRAFTON AVE
CONDITION : PM PEAK HOUR PHF : 0.93

NORTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
14	5	19	1	0	0	0	0	0	1	0	1
12	8	11	0	0	0	0	0	0	0	0	0
10	10	17	0	0	0	0	0	0	0	0	1
10	12	10	0	0	0	0	0	0	0	0	0

SOUTH LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
20	16	18	0	0	0	1	0	0	0	0	1
18	12	33	0	0	1	0	0	0	0	0	0
17	15	38	0	0	0	0	0	0	0	0	0
15	18	21	0	0	0	0	0	1	0	0	0

EAST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
7	88	16	0	1	0	0	0	0	1	1	0
6	61	6	0	0	0	0	0	0	0	2	0
5	65	9	0	1	1	0	0	0	0	1	0
5	66	5	0	0	0	0	0	0	0	0	0

WEST LEG											
AUTOS			2 AXLE			3 AXLE			4(+) AXLE		
RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
14	122	18	1	2	0	0	2	0	0	2	0
23	126	16	0	0	1	0	2	0	0	1	2
12	142	20	0	1	0	0	0	0	0	0	0
14	114	16	0	1	0	0	0	0	0	1	0

	Truck Volumes	Auto Volumes	Totals	Rounded Totals	Truck Percentage
MENTONE BLVD/SR 38					
EBL	3	70	**73**	**75**	5%
EBTH	12	504	**516**	**520**	5%
EBR	1	63	**64**	**65**	5%
WBL	1	36	**37**	**40**	5%
WBTH	6	280	**286**	**290**	5%
WBR	1	23	**24**	**25**	5%
CRAFTON AVE					
NBL	3	110	**113**	**115**	5%
NBTH	0	61	**61**	**65**	5%
NBR	1	70	**71**	**75**	5%
SBL	2	57	**59**	**60**	5%
SBTH	0	35	**35**	**35**	5%
SBR	2	46	**48**	**50**	5%

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: MENTONE
EAST-WEST STREET: CRAFTON
JURISDICTION: MENTONE

DATE: 03-27-19

PEAK HOUR: 04:45PM

NORTH LEG

TOTAL: 142

Rt	Thru	Lt	
48	35	59	Total
16	5	20	1st
12	8	11	2nd
10	10	18	3rd
10	12	10	4th

EAST LEG TOTAL: 347

	1st	2nd	3rd	4th	Total
Rt	8	6	5	5	24
Thru	90	63	67	66	286
Lt	16	6	10	5	37

WEST LEG TOTAL: 653

Total	1st	2nd	3rd	4th	
73	18	19	20	16	Lt
516	128	129	143	116	Thru
64	15	23	12	14	Rt

PEAK HOUR FACTORS

NORTH LEG = 0.87
SOUTH LEG = 0.88
EAST LEG = 0.76
WEST LEG = 0.93

ALL LEGS = 0.93

SOUTH LEG

TOTAL: 245

	Lt	Thru	Rt
1st	19	16	21
2nd	34	12	18
3rd	38	15	17
4th	22	18	15
Total	113	61	71

HOUR TOTAL: 1,387

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : MENTONE — MENTONE

EAST-WEST STREET : CRAFTON — 03-27-19

BEGINNING TIME : 04:00PM

AUTOS RT	AUTOS THRU	AUTOS LT	LARGE 2 AXLE RT	LARGE 2 AXLE THRU	LARGE 2 AXLE LT	3 AXLE RT	3 AXLE THRU	3 AXLE LT	4(+) AXLE RT	4(+) AXLE THRU	4(+) AXLE LT	TOTALS
					NORTH LEG							
8	9	10	0	0	0	0	0	0	0	0	0	27
8	14	11	0	0	0	0	0	0	0	0	0	33
12	12	13	0	0	0	0	0	0	0	0	0	37
14	5	19	1	0	0	0	0	0	1	0	1	41
12	8	11	0	0	0	0	0	0	0	0	0	31
10	10	17	0	0	0	0	0	0	0	0	1	38
10	12	10	0	0	0	0	0	0	0	0	0	32
8	9	9	0	0	0	0	0	0	0	0	1	27
82	79	100	1	0	0	0	0	0	1	0	3	266
					SOUTH LEG							
10	14	16	0	0	0	0	0	0	0	0	0	40
15	13	21	0	0	0	0	0	0	0	0	0	49
13	10	18	0	0	1	0	0	1	0	1	0	44
20	16	18	0	0	0	1	0	0	0	0	1	56
18	12	33	0	0	1	0	0	0	0	0	0	64
17	15	38	0	0	0	0	0	0	0	0	0	70
15	18	21	0	0	0	0	0	1	0	0	0	55
11	12	15	0	0	0	0	0	0	0	0	0	38
119	110	180	0	0	2	1	0	2	0	1	1	416
					EAST LEG							
5	69	8	0	0	0	0	0	0	0	0	0	82
5	73	5	0	0	0	0	0	0	0	0	0	83
2	70	7	0	1	0	0	0	0	0	0	0	80
7	88	16	0	1	0	0	0	0	1	1	0	114
6	61	6	0	0	0	0	0	0	0	2	0	75
5	65	9	0	1	1	0	0	0	0	1	0	82
5	66	5	0	0	0	0	0	0	0	0	0	76
5	51	8	0	2	0	0	0	0	0	1	0	67
40	543	64	0	5	1	0	0	0	1	5	0	659
					WEST LEG							
6	65	10	0	0	0	0	0	0	0	0	0	81
12	81	7	0	0	0	0	0	0	0	0	0	100
9	84	8	0	1	0	0	1	0	0	0	0	103
14	122	18	1	2	0	0	2	0	0	2	0	161
23	126	16	0	0	1	0	2	0	0	1	2	171
12	142	20	0	1	0	0	0	0	0	0	0	175
14	114	16	0	1	0	0	0	0	0	1	0	146
10	95	17	0	0	0	0	1	0	0	0	0	123
100	829	112	1	5	1	0	6	0	0	4	2	1060

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: MENTONE

EAST-WEST STREET: CRAFTON

TIME: 04:00PM-05:00PM DATE: 03-27-19

NORTH LEG

Rt	Thru	Lt	
44	40	54	Total
8	9	10	1st
8	14	11	2nd
12	12	13	3rd
16	5	20	4th

	1st	2nd	3rd	4th	Total
Rt	5	5	2	8	20
Thru	69	73	71	90	303
Lt	8	5	7	16	36

Total	1st	2nd	3rd	4th	
43	10	7	8	18	Lt
360	65	81	86	128	Thru
42	6	12	9	15	Rt

	Lt	Thru	Rt
1st	16	14	10
2nd	21	13	15
3rd	20	11	13
4th	19	16	21
Total	76	54	59

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: MENTONE

EAST-WEST STREET: CRAFTON

TIME: 05:00PM-06:00PM DATE: 03-27-19

NORTH LEG

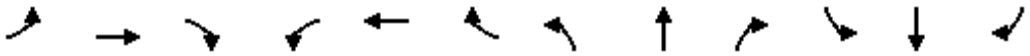
Rt	Thru	Lt	
40	39	49	Total
12	8	11	1st
10	10	18	2nd
10	12	10	3rd
8	9	10	4th

	1st	2nd	3rd	4th	Total
Rt	6	5	5	5	21
Thru	63	67	66	54	250
Lt	6	10	5	8	29

Total	1st	2nd	3rd	4th	
72	19	20	16	17	Lt
484	129	143	116	96	Thru
59	23	12	14	10	Rt

	Lt	Thru	Rt
1st	34	12	18
2nd	38	15	17
3rd	22	18	15
4th	15	12	11
Total	109	57	61

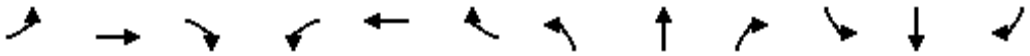
Prepared by NEWPORT TRAFFIC STUDIES



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	520	65	40	290	25	115	65	75	60	35	50
Future Volume (veh/h)	75	520	65	40	290	25	115	65	75	60	35	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	81	559	70	43	312	27	124	70	81	65	38	54
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	101	707	599	64	606	52	435	445	377	417	423	377
Arrive On Green	0.06	0.39	0.39	0.04	0.37	0.37	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1739	1826	1547	1739	1657	143	1273	1826	1547	1207	1735	1547
Grp Volume(v), veh/h	81	559	70	43	0	339	124	70	81	65	38	54
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	0	1800	1273	1826	1547	1207	1735	1547
Q Serve(g_s), s	2.1	12.2	1.3	1.1	0.0	6.6	3.8	1.4	1.9	2.0	0.8	1.2
Cycle Q Clear(g_c), s	2.1	12.2	1.3	1.1	0.0	6.6	5.1	1.4	1.9	3.4	0.8	1.2
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	101	707	599	64	0	659	435	445	377	417	423	377
V/C Ratio(X)	0.80	0.79	0.12	0.67	0.00	0.51	0.29	0.16	0.21	0.16	0.09	0.14
Avail Cap(c_a), veh/h	270	1213	1028	154	0	1076	435	445	377	417	423	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	12.2	8.9	21.5	0.0	11.2	15.4	13.4	13.6	14.8	13.2	13.4
Incr Delay (d2), s/veh	13.5	2.0	0.1	11.4	0.0	0.6	1.6	0.8	1.3	0.8	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.9	0.3	0.6	0.0	2.0	1.0	0.5	0.6	0.5	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	14.2	9.0	32.9	0.0	11.8	17.0	14.2	14.9	15.6	13.6	14.2
LnGrp LOS	C	B	A	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		710			382			275			157	
Approach Delay, s/veh		16.0			14.2			15.7			14.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	22.5		16.0	7.6	21.5		16.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	30.0		11.0	7.0	27.0		11.0				
Max Q Clear Time (g_c+I1), s	3.1	14.2		5.4	4.1	8.6		7.1				
Green Ext Time (p_c), s	0.0	3.3		0.3	0.0	1.7		0.3				

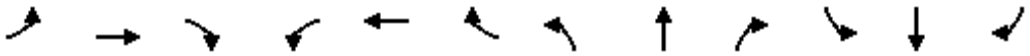
Intersection Summary		
HCM 6th Ctrl Delay		15.4
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	530	80	45	295	25	105	65	75	60	45	55
Future Volume (veh/h)	85	530	80	45	295	25	105	65	75	60	45	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	91	570	86	48	317	27	113	70	81	65	48	59
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	115	717	608	69	609	52	421	438	371	410	416	371
Arrive On Green	0.07	0.39	0.39	0.04	0.37	0.37	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1739	1826	1547	1739	1659	141	1256	1826	1547	1207	1735	1547
Grp Volume(v), veh/h	91	570	86	48	0	344	113	70	81	65	48	59
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	0	1800	1256	1826	1547	1207	1735	1547
Q Serve(g_s), s	2.4	12.6	1.6	1.2	0.0	6.9	3.6	1.4	1.9	2.1	1.0	1.4
Cycle Q Clear(g_c), s	2.4	12.6	1.6	1.2	0.0	6.9	5.0	1.4	1.9	3.5	1.0	1.4
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	717	608	69	0	660	421	438	371	410	416	371
V/C Ratio(X)	0.79	0.79	0.14	0.69	0.00	0.52	0.27	0.16	0.22	0.16	0.12	0.16
Avail Cap(c_a), veh/h	266	1195	1013	152	0	1061	421	438	371	410	416	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.1	12.3	8.9	21.7	0.0	11.4	15.7	13.8	14.0	15.1	13.6	13.8
Incr Delay (d2), s/veh	11.6	2.1	0.1	11.6	0.0	0.6	1.6	0.8	1.3	0.8	0.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	4.1	0.4	0.7	0.0	2.1	0.9	0.5	0.6	0.5	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	14.3	9.1	33.3	0.0	12.0	17.3	14.5	15.3	16.0	14.2	14.7
LnGrp LOS	C	B	A	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		747			392			264			172	
Approach Delay, s/veh		16.0			14.6			16.0			15.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	23.0		16.0	8.0	21.8		16.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	30.0		11.0	7.0	27.0		11.0				
Max Q Clear Time (g_c+I1), s	3.2	14.6		5.5	4.4	8.9		7.0				
Green Ext Time (p_c), s	0.0	3.4		0.3	0.0	1.8		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			15.5									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	535	70	45	300	30	120	70	80	65	40	55
Future Volume (veh/h)	80	535	70	45	300	30	120	70	80	65	40	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	86	575	75	48	323	32	129	75	86	70	43	59
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	108	721	611	69	609	60	420	437	370	404	415	370
Arrive On Green	0.06	0.39	0.39	0.04	0.37	0.37	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1739	1826	1547	1739	1635	162	1262	1826	1547	1196	1735	1547
Grp Volume(v), veh/h	86	575	75	48	0	355	129	75	86	70	43	59
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	0	1797	1262	1826	1547	1196	1735	1547
Q Serve(g_s), s	2.2	12.8	1.4	1.3	0.0	7.1	4.1	1.5	2.1	2.3	0.9	1.4
Cycle Q Clear(g_c), s	2.2	12.8	1.4	1.3	0.0	7.1	5.5	1.5	2.1	3.8	0.9	1.4
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	721	611	69	0	669	420	437	370	404	415	370
V/C Ratio(X)	0.80	0.80	0.12	0.69	0.00	0.53	0.31	0.17	0.23	0.17	0.10	0.16
Avail Cap(c_a), veh/h	265	1191	1010	151	0	1055	420	437	370	404	415	370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	12.3	8.9	21.8	0.0	11.3	16.0	13.9	14.1	15.4	13.6	13.8
Incr Delay (d2), s/veh	12.4	2.1	0.1	11.6	0.0	0.7	1.9	0.9	1.5	0.9	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	4.1	0.4	0.7	0.0	2.2	1.1	0.5	0.7	0.6	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	14.4	8.9	33.4	0.0	11.9	17.9	14.7	15.6	16.3	14.1	14.8
LnGrp LOS	C	B	A	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		736			403			290			172	
Approach Delay, s/veh		16.1			14.5			16.4			15.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	23.2		16.0	7.9	22.1		16.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	30.0		11.0	7.0	27.0		11.0				
Max Q Clear Time (g_c+I1), s	3.3	14.8		5.8	4.2	9.1		7.5				
Green Ext Time (p_c), s	0.0	3.4		0.3	0.0	1.8		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		15.6
HCM 6th LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	545	85	50	305	30	110	70	80	65	50	60
Future Volume (veh/h)	90	545	85	50	305	30	110	70	80	65	50	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	97	586	91	54	328	32	118	75	86	70	54	65
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	123	730	619	75	610	60	405	430	365	397	409	365
Arrive On Green	0.07	0.40	0.40	0.04	0.37	0.37	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1739	1826	1547	1739	1637	160	1243	1826	1547	1196	1735	1547
Grp Volume(v), veh/h	97	586	91	54	0	360	118	75	86	70	54	65
Grp Sat Flow(s),veh/h/ln	1739	1826	1547	1739	0	1797	1243	1826	1547	1196	1735	1547
Q Serve(g_s), s	2.6	13.2	1.8	1.4	0.0	7.3	3.9	1.5	2.1	2.3	1.1	1.6
Cycle Q Clear(g_c), s	2.6	13.2	1.8	1.4	0.0	7.3	5.5	1.5	2.1	3.8	1.1	1.6
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	123	730	619	75	0	670	405	430	365	397	409	365
V/C Ratio(X)	0.79	0.80	0.15	0.72	0.00	0.54	0.29	0.17	0.24	0.18	0.13	0.18
Avail Cap(c_a), veh/h	261	1173	994	149	0	1039	405	430	365	397	409	365
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	12.4	8.9	22.1	0.0	11.5	16.4	14.2	14.4	15.8	14.1	14.2
Incr Delay (d2), s/veh	10.7	2.1	0.1	12.1	0.0	0.7	1.8	0.9	1.5	1.0	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.3	0.5	0.8	0.0	2.3	1.0	0.6	0.7	0.6	0.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	14.5	9.0	34.2	0.0	12.2	18.2	15.1	16.0	16.7	14.8	15.3
LnGrp LOS	C	B	A	C	A	B	B	B	B	B	B	B
Approach Vol, veh/h		774			414			279			189	
Approach Delay, s/veh		16.0			15.0			16.7			15.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	23.7		16.0	8.3	22.4		16.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	4.0	30.0		11.0	7.0	27.0		11.0				
Max Q Clear Time (g_c+I1), s	3.4	15.2		5.8	4.6	9.3		7.5				
Green Ext Time (p_c), s	0.0	3.4		0.3	0.0	1.9		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									

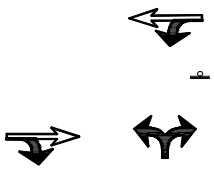
DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	15-May-19	CJCD0000-0001	1 OF 1

E/W STREET : MENTONE BLVD/SR 38
N/S STREET : DRIVEWAY "A"
CONDITION : AM PEAK HOUR

INTERSECTION : 2
PROJECTED GROWTH PER YEAR : 2.0%

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

CONDITION	EXISTING CONDITIONS TRAFFIC	PROJECT TRIPS	EXISTING + PROJECT TRAFFIC	AMBIENT GROWTH	BACKGROUND CONDITIONS TRAFFIC	PROJECT CONDITIONS TRAFFIC
	1		3		5	7
MENTONE BLVD/SR 38						
EB LEFT	0	0	0	0	0	0
EB THRU	535	-25	510	20	555	530
EB RIGHT	0	40	40	0	0	40
WB LEFT	0	30	30	0	0	30
WB THRU	540	-20	520	20	560	540
WB RIGHT	0	0	0	0	0	0
DRIVEWAY "A"						
NB LEFT	0	35	35	0	0	35
NB THRU	0	0	0	0	0	0
NB RIGHT	0	50	50	0	0	50
SB LEFT	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0
SB RIGHT	0	0	0	0	0	0
TOTALS	**1075**	**110**	**1185**	**40**	**1115**	**1225**

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	510	40	30	520	35	50
Future Vol, veh/h	510	40	30	520	35	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	526	41	31	536	36	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	567	0	1145	547
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	598	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	990	-	218	531
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	543	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	990	-	208	531
Mov Cap-2 Maneuver	-	-	-	-	336	-
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	543	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	429	-	-	990	-
HCM Lane V/C Ratio	0.204	-	-	0.031	-
HCM Control Delay (s)	15.5	-	-	8.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	530	40	30	540	35	50
Future Vol, veh/h	530	40	30	540	35	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	546	41	31	557	36	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	587	0	1186	567
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	619	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	973	-	206	517
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	531	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	973	-	197	517
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	531	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	15.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	417	-	-	973	-
HCM Lane V/C Ratio	0.21	-	-	0.032	-
HCM Control Delay (s)	15.9	-	-	8.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	15-May-19	CJCD0000-0001	1 OF 1

E/W STREET : MENTONE BLVD/SR 38
N/S STREET : DRIVEWAY "A"
CONDITION : PM PEAK HOUR

INTERSECTION : 2
PROJECTED GROWTH PER YEAR : 2.0%

TURN MOVEMENTS

CONDITION	EXISTING CONDITIONS TRAFFIC	PROJECT TRIPS	EXISTING + PROJECT TRAFFIC	AMBIENT GROWTH	BACKGROUND CONDITIONS TRAFFIC	PROJECT CONDITIONS TRAFFIC
	2		4		6	8
MENTONE BLVD/SR 38						
EB LEFT	0	0	0	0	0	0
EB THRU	660	-25	635	25	685	660
EB RIGHT	0	40	40	0	0	40
WB LEFT	0	30	30	0	0	30
WB THRU	455	-20	435	20	475	455
WB RIGHT	0	0	0	0	0	0
DRIVEWAY "A"						
NB LEFT	0	40	40	0	0	40
NB THRU	0	0	0	0	0	0
NB RIGHT	0	60	60	0	0	60
SB LEFT	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0
SB RIGHT	0	0	0	0	0	0
TOTALS	**1115**	**125**	**1240**	**45**	**1160**	**1285**

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	635	40	30	435	40	60
Future Vol, veh/h	635	40	30	435	40	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	683	43	32	468	43	65

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	726	0	1237	705
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	532	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	863	-	191	431
Stage 1	-	-	-	-	484	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	863	-	181	431
Mov Cap-2 Maneuver	-	-	-	-	310	-
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	583	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	18.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	373	-	-	863	-
HCM Lane V/C Ratio	0.288	-	-	0.037	-
HCM Control Delay (s)	18.5	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	660	40	30	455	40	60
Future Vol, veh/h	660	40	30	455	40	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	710	43	32	489	43	65

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	753	0	1285	732
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	553	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	844	-	179	416
Stage 1	-	-	-	-	471	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	844	-	170	416
Mov Cap-2 Maneuver	-	-	-	-	300	-
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	570	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	360	-	-	844	-
HCM Lane V/C Ratio	0.299	-	-	0.038	-
HCM Control Delay (s)	19.2	-	-	9.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	15-May-19	CJCD0000-0001	1 OF 1

E/W STREET : DRIVEWAY "B"
N/S STREET : CRAFTON AVE
CONDITION : AM PEAK HOUR

INTERSECTION : 3
PROJECTED GROWTH PER YEAR : 2.0%

CONDITION DIAGRAMS

EXISTING GEOMETRICS

TURN MOVEMENTS

CONDITION	EXISTING CONDITIONS TRAFFIC	PROJECT TRIPS	EXISTING + PROJECT TRAFFIC	AMBIENT GROWTH	BACKGROUND CONDITIONS TRAFFIC	PROJECT CONDITIONS TRAFFIC
	1		3		5	7
DRIVEWAY "B"						
EB LEFT	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0
CRAFTON AVE						
NB LEFT	0	20	20	0	0	20
NB THRU	140	0	140	15	155	155
NB RIGHT	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0
SB THRU	180	0	180	15	195	195
SB RIGHT	0	10	10	0	0	10
TOTALS	**320**	**30**	**350**	**30**	**350**	**380**

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	20	140	180	10
Future Vol, veh/h	0	0	20	140	180	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	0	21	144	186	10

Major/Minor	Minor2		Major2	
Conflicting Flow All	191	191	-	0
Stage 1	191	191	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.9	6.6	-	-
Critical Hdwy Stg 1	5.9	5.6	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.55	4.05	-	-
Pot Cap-1 Maneuver	772	696	-	-
Stage 1	814	734	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	772	0	-	-
Mov Cap-2 Maneuver	772	0	-	-
Stage 1	814	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	10.9	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	772	-	-
HCM Lane V/C Ratio	0.214	-	-
HCM Control Delay (s)	10.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	20	155	195	10
Future Vol, veh/h	0	0	20	155	195	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	0	21	160	201	10

Major/Minor	Minor2		Major2	
Conflicting Flow All	206	206	-	0
Stage 1	206	206	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.9	6.6	-	-
Critical Hdwy Stg 1	5.9	5.6	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.55	4.05	-	-
Pot Cap-1 Maneuver	755	683	-	-
Stage 1	799	723	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	755	0	-	-
Mov Cap-2 Maneuver	755	0	-	-
Stage 1	799	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	11.3	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	755	-	-
HCM Lane V/C Ratio	0.239	-	-
HCM Control Delay (s)	11.3	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-

DAVID EVANS AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TNM	15-May-19	CJCD0000-0001	1 OF 1

E/W STREET : DRIVEWAY "B"
N/S STREET : CRAFTON AVE
CONDITION : PM PEAK HOUR

INTERSECTION : 3
PROJECTED GROWTH PER YEAR : 2.0%

TURN MOVEMENTS

CONDITION	EXISTING CONDITIONS TRAFFIC	PROJECT TRIPS	EXISTING + PROJECT TRAFFIC	AMBIENT GROWTH	BACKGROUND CONDITIONS TRAFFIC	PROJECT CONDITIONS TRAFFIC
	2		4		6	8
DRIVEWAY "B"						
EB LEFT	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0
CRAFTON AVE						
NB LEFT	0	25	25	0	0	25
NB THRU	255	0	255	15	270	270
NB RIGHT	0	0	0	0	0	0
SB LEFT	0	0	0	0	0	0
SB THRU	140	0	140	15	155	155
SB RIGHT	0	15	15	0	0	15
TOTALS	**395**	**40**	**435**	**30**	**425**	**465**

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	25	255	140	15
Future Vol, veh/h	0	0	25	255	140	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	0	27	274	151	16

Major/Minor	Minor2		Major2	
Conflicting Flow All	159	159	-	0
Stage 1	159	159	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.9	6.6	-	-
Critical Hdwy Stg 1	5.9	5.6	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.55	4.05	-	-
Pot Cap-1 Maneuver	808	725	-	-
Stage 1	844	758	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	808	0	-	-
Mov Cap-2 Maneuver	808	0	-	-
Stage 1	844	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	12.1	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	808	-	-
HCM Lane V/C Ratio	0.373	-	-
HCM Control Delay (s)	12.1	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	1.7	-	-

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	25	270	155	15
Future Vol, veh/h	0	0	25	270	155	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	0	27	290	167	16

Major/Minor	Minor2		Major2	
Conflicting Flow All	175	175	-	0
Stage 1	175	175	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.9	6.6	-	-
Critical Hdwy Stg 1	5.9	5.6	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.55	4.05	-	-
Pot Cap-1 Maneuver	789	710	-	-
Stage 1	829	746	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	789	0	-	-
Mov Cap-2 Maneuver	789	0	-	-
Stage 1	829	0	-	-
Stage 2	-	0	-	-

Approach	NB	SB
HCM Control Delay, s	12.6	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBLn1	SBT	SBR
Capacity (veh/h)	789	-	-
HCM Lane V/C Ratio	0.402	-	-
HCM Control Delay (s)	12.6	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	2	-	-